STIP Project U-5768
NC 49 Improvements

ADMINISTRATIVE ACTION

State Environmental Assessment and
Finding of No Significant Impact

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Submitted pursuant to the North Carolina Environmental Policy Act

NC 49 Improvements
STIP Project U-5768
WBS No.: 50181.1.R1

Widen existing NC 49 from John Kirk Drive to I-485,
Realign Back Creek Church Road (SR 2827) on new location to the NC 49 and E. Mallard Creek Church Road (SR 2833) intersection, and
Close existing at-grade rail crossing at NC 49 and Back Creek Church Road

Charlotte, Mecklenburg County

ADMINISTRATIVE ACTION

STATE ENVIRONMENTAL ASSESSMENT and FINDING OF NO SIGNIFICANT IMPACT

November 2019

Documentation prepared for North Carolina Department of Transportation and the City of Charlotte:

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PROJECT COMMITMENTS

NC 49 from John Kirk Drive to I-485 (Widen existing roadway); realign Back Creek Church Road (SR 2827) on new location to the NC 49 Mallard Creek Church Road (SR 2833) intersection; close existing at grade rail crossing at NC 49 and Back Creek Church Road Charlotte, Mecklenburg County
STIP Project U-5768
WBS No.: 50181.1.R1

All commitments developed during the project development and design phase for the projects are listed below.

North Carolina Department of Transportation (NCDOT) Environmental Analysis Unit

If noise walls are considered practicable, a Design Noise Report (DNR) should be developed after preliminary designs are approved.

NCDOT Division 10/NCDOT Project Management Unit (PMU), Charlotte Department of Transportation (CDOT)

Throughout the final design process, NCDOT and CDOT will continue coordination with UNC Charlotte and University City Partners on potential modifications that would enhance bicycle and pedestrian accommodation.

NCDOT and CDOT will coordinate with Charlotte Area Transit System (CATS) on the location of transit stops and facilities along the project corridor.

NCDOT will coordinate with the Mecklenburg County with regards to accommodation for the proposed Back Creek Park and the proposed Back Creek Greenway.

NCDOT and CDOT will continue outreach as appropriate with Home Owners Associations in the project area.

NCDOT will continue to coordinate with the City of Charlotte on the development of a municipal agreement for with any cost sharing arrangements for betterments associated with the proposed improvements of NC 49 and Back Creek Church Road.

NCDOT Division 10

NCDOT Division 10 will coordinate with local emergency response and school transportation officials before the start of construction.

NCDOT Rail Division – Encroachment Agreement

NCDOT Rail Division will coordinate with North Carola Railroad/Norfolk Southern Railroad to develop an encroachment agreement for the grade separated crossing of Back Creek Church Road under the railroad bridge constructed by NCDOT STIP Project P-5208 and on the closure of the existing at-grade railroad crossing with Back Creek Church Road.

NCDOT Utilities Division – Encroachment Agreement

NCDOT Utilities Division will coordinate with Duke Energy on potential issues associated with the crossing of the realigned Back Creek Church Road through a Duke Energy power line easement.

NCDOT Hydraulics Unit – Floodplain Mapping

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP) to determine status of project with regard to applicability of NCDOT's Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR)* and subsequent final Letter of Map Revision (LOMR).

* If project is in Mecklenburg County, CLOMR submittals should be coordinated with Charlotte-Mecklenburg Storm Water Services.

NCDOT Highway Division – Construction Plans

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed As-built construction plans to the Hydraulics Unit upon completion of structure construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically

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ACRONYMS AND ABBREVIATIONS

Term/Abbreviation	Definition
AADT	Annual Average Daily Traffic
APE	Area of Potential Effects
ARP	[Back Creek] Associate Reformed Presbyterian [Church]
BLE	Blue Line Extension
CATS	Charlotte Area Transit System
CCR	Community Characteristics Report
CDOT	Charlotte Department of Transportation
CFR	Code of Federal Regulations
CP	Concurrence Point
CRTPO	Charlotte Regional Transportation Planning Organization
dB(A)	Noise measured on the A-weighted Decibel frequency scale
DCIA	Direct Community Impact Area
DWR	[NC] Division of Water Resources
EA	Environmental Assessment
EAU	[NCDOT] Environmental Analysis Unit
ECR	Eastern Circumferential Road
EPA	[US] Environmental Protection Agency
FHWA	Federal Highway Administration
FLUSA	Future Land Use Study Area
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
GS	[NC] General Statute
HAWK	High-Intensity Activated crossWalK beacon
HOA	Homeowner's Association
HPO	[North Carolina State] Historic Preservation Office
ICE	Indirect and Cumulative Effects
LEDPA	Least Environmentally Damaging Practicable Alternative
LOS	Level of Service
LRT	Light Rail Transit
Mph	Miles per Hour
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
MUDD	Mixed-Use Development District
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NC	North Carolina
NCDOT	North Carolina Department of Transportation
NCNHP	North Carolina Natural Heritage Program
NCRR/NS	North Carolina Railroad/Norfolk Southern
NEPA	National Environmental Policy Act of 1969

Term/Abbreviation	Definition
NLEB	Northern Long-eared Bat
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Study Area
NRTR	Natural Resources Technical Report
RCI	Reduced Conflict Intersection
SC	South Carolina
SEA	State Environmental Assessment
SEPA	[North Carolina] Environmental Policy Act of 1971
SR	State Route
STIP	State Transportation Improvement Program
UCP	University City Partners
UNC Charlotte	University of North Carolina at Charlotte
USACE	US Army Corps of Engineers
USC	United States Code
USFWS	US Fish and Wildlife Service
UST	Underground Storage Tank
UT	Unnamed Tributary
VPD	Vehicles Per Day
WS	Water Supply Watersheds

1. Description of the Proposed Action

The North Carolina Department of Transportation (NCDOT), in coordination with the Charlotte Department of Transportation (CDOT), proposes to widen NC 49 (University City Boulevard) from John Kirk Drive to I-485 in Mecklenburg County, North Carolina. The project will also realign SR 2827 (Back Creek Church Road) to intersect with NC 49 at SR 2833 (E. Mallard Creek Church Road). The current at-grade intersection of Back Creek Church Road and North Carolina Railroad/Norfolk Southern Railroad (NCRR/NS) just south of NC 49 will be closed in conjunction with these improvements. The project location is shown in Figure 1. The project would improve approximately 1.2 miles of NC 49 and approximately 0.9 mile of Back Creek Church Road. The surrounding area that is assessed by this SEA/FONSI is referred to as the study area. The study area is approximately 492 acres (see Figure 1).

The project is included in the 2020-2029 State Transportation Improvement Program (STIP) as project U-5768. The project will be funded with State and local (City of Charlotte) funds. Right of way acquisition and construction are programmed to begin in fiscal years 2021 and 2023, respectively. Nearby STIP projects are shown in Figure 2.

This combined State Environmental Assessment/Finding of No Significant Impact (SEA/FONSI) was prepared in accordance with the North Carolina Environmental Policy Act of 1971 (SEPA).

2. Purpose and Need

2.1 Need for Project

The needs to be addressed by this project include:

- NC 49 is currently operating at or close to congested levels (as shown in Table 2).
- From 2000 through December 2018, there were seven highway vehicle/train crashes at the NCRR/NS at-grade rail crossing on Back Creek Church Road just south of NC 49. This crossing is shown in Exhibit 1. Current typical train traffic as reported by Norfolk Southern is 38 trains per day. Train volumes are expected to double in the future, because this crossing is located within the proposed NCDOT Southeast High-Speed Rail corridor.
- With the proposed closing of the Back Creek Church Road railroad crossing, the existing roadway network connectivity between the Rocky River Area to the south and NC 49 would need to be maintained.
- Traffic volumes and lack of accommodations along NC 49 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes. CDOT, University of North Carolina at Charlotte (UNC Charlotte), and University City Partners (UCP) have cited the need to accommodate pedestrians and bicycles in any proposed improvement.

2.2 Purpose of the Project

The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on NC 49. Another purpose is to improve safety and enhance train and vehicle operations. The screening criteria for this are:

- Achieve an overall level of service (LOS) D for intersections along the project corridor in the design year (2040).
- Maintain connectivity within the existing road network.
- Safely accommodate multi-modal uses of the corridor.

2.3 Description of Existing Conditions

Within the project corridor, NC 49 is a four-lane median-divided facility from John Kirk Drive to I-485. Back Creek Church Road is a two-lane facility. The posted speed limit along NC 49 is 45 miles per hour (mph), while Back Creek Church Road is posted at 35 mph. Neither of these facilities currently are access controlled (driveways are allowed direct access to the roads). There are several intersections providing access to residential and commercial subdivisions along NC 49. These roads include (as shown in Figure 3): John Kirk Drive, SR 2939 (Old Concord Road), E. Mallard Creek Road, Back Creek Church Road, and I-485. There are approximately two residences and one church with driveways accessing Back Creek Church Road in the project study area.

Exhibit 1 Existing At-Grade Crossing of Back Creek Church Road

The functional classification of NC 49 between John Kirk Drive and I-485 is Principal Arterial and it is a part of the NC 49 Strategic Transportation Corridor R (US 64W/ NC 49). Back Creek Church Road and SR 2800 (Pavilion Boulevard) are currently classified as Local Routes. E. Mallard Creek Church Road is classified as a Minor Arterial. John Kirk Drive is classified as a Minor Collector. There are three existing bridges and culverts in the study area: a bridge over Back Creek along the existing Back Creek Church Road, the railroad bridge constructed for STIP Project P-5208, and a box culvert at the southern terminus of the study area.

There are existing sidewalks and crosswalks in the study area. A multi-use path extends along the north side of NC 49 from John Kirk Drive to E. Mallard Creek Church Road. Several discontinuous areas of sidewalk exist at commercial properties west of E. Mallard Creek Church Road on the north side of NC 49. There are two areas of discontinuous sidewalk on the south side of NC 49. There is existing sidewalk on Back Creek Church Road on both sides of the facility from south of

the NCRR/NC railroad crossing to Back Creek Associate Reformed Presbyterian (ARP) Church. On the east side of Back Creek Church Road, the sidewalk continues to the south, ending just north of Back Creek.

The Charlotte Area Transit System (CATS) operates daily bus and light rail services throughout Charlotte and surrounding municipalities in adjacent counties. CATS bus route 29 (UNC Charlotte/JW Clay) operates within the project corridor. Existing routes operate service northbound on NC 49, turning left (west) onto E. Mallard Creek Church Road. Future plans for CATS include adding two additional bus routes: one operating from Pavilion Boulevard to connect neighborhoods into the existing light rail system, and another operating from Harrisburg south along NC 49 to the University City Boulevard station.

The 2017 Charlotte Regional Transportation Planning Organization (CRTPO) Comprehensive Transportation Plan identifies NC 49 as a boulevard needing improvements. E. Mallard Creek Church Road is identified as an existing boulevard and Back Creek Church Road is identified as a recommended boulevard.

2.4 Traffic Conditions

The Traffic Forecast Technical Memorandum (NCDOT, 2017) and the Traffic Analysis Technical Memorandum Addendum (NCDOT, 2019) analyzed the traffic along the project corridor from John Kirk Drive to the I-485 intersection. As shown in Table 1, the forecast provides 2015 (base year) Annual Average Daily Traffic (AADT) in vehicles per day (vpd), as well as projected volumes in 2040 (design year) under Build and No-Build conditions along NC 49 and Back Creek Church Road. The AADT is expected to increase on E. Mallard Creek Church Road in the design year (2040) to 60,200 vpd from John Kirk Drive to E. Mallard Creek Church Road and to 64,850 vpd at E. Mallard Creek Church Road to Pavilion Boulevard under the No-Build condition.

Table 1. Annual Average Daily Traffic for Base and Future Year

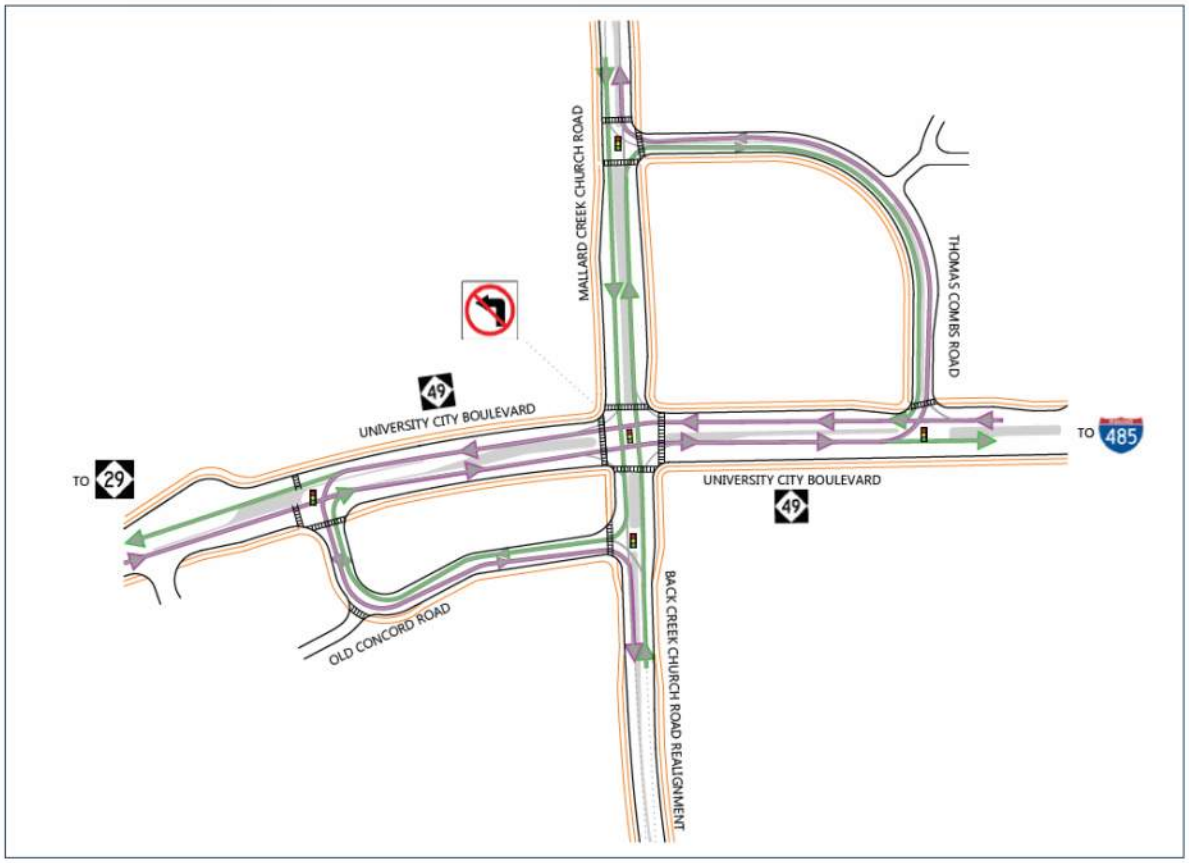
Location	2015 No Build AADT (vpd)	2040 No Build AADT (vpd)	2040 Build AADT (vpd)
NC 49- West of John Kirk Drive	37,000	48,200	57,000
NC 49- John Kirk Drive to E. Mallard Creek Church Road	41,400	60,200	73,500
NC 49- E. Mallard Creek Church Road to Pavilion Boulevard	47,000	64,850	74,600
NC 49- Pavilion Boulevard to I-485	42,000	53,800	63,200
Back Creek Church Road- South of NC 49	18,800	19,250	-
Realigned Back Creek Church Road- South of NC 49	14,600	-	20,667

Source: NCDOT Traffic Forecast Addendum, 2019

The Traffic Analysis Technical Memorandum (2017) analyzed the No-Build scenario and three Build scenarios, including a six-lane conventional intersection, a six-lane reduced conflict intersection (RCI) and a six-lane modified RCI. Based on additional coordination with NCDOT and CDOT, NCDOT revised the three build scenarios to include modified quadrant intersections with and without

grade separations. Quadrant intersections add an additional roadway to an intersection. These additional roads handle turning movements, allowing traffic to more efficiently pass through the primary intersection (see Exhibit 2).

Exhibit 2. Quadrant Roads at the NC 49, E. Mallard Creek Church Road/Back Creek Church Road Intersection



The traffic analysis presented in the Traffic Analysis and Traffic Analysis Technical Memorandum Addendum (2019) evaluated the LOS in the base year No-Build and design year No-Build and Build scenarios. Table 2 summarizes the LOS for selected intersections within the study area.

Table 2. Overall Intersection LOS Comparison for Base and Design Year (No-Build and Selected Alternative)

Intersection	2015 No Build LOS		2040 No Build LOS		Intersection	2040 Build LOS (Alternative 1 (Yellow))	
	AM	PM	AM	PM		AM	PM
NC 49 & John Kirk Dr	F	F	F	F	NC 49 EB & John Kirk Dr U-turn	B	B
					NC 49 EB & John Kirk Dr	C	C
					NC 49 WB & John Kirk Dr	B	B
					NC 49 WB & John Kirk Dr U-turn	B	B
NC 49 & SW Quadrant Rd	-	-	-	-	NC 49 EB & SW Quadrant Rd	B	B
NC 49 & E. Mallard Creek Church Rd/ Back Creek Church Rd	C	F	F	F	NC 49 & E. Mallard Creek Church Rd/ Back Creek Church Rd	B	B
NC 49 & NE Quadrant Rd/ Thomas Combs Dr	-	-	-	-	NC 49 & NE Quadrant Rd/ Thomas Combs Dr	A	A
NC 49 & Sams Lane	-	-	F*	F*	NC 49 & Sams Lane	C	B
NC 49 & Pavilion Blvd/ Back Creek Church Rd	F	F	F	F	NC 49 EB & Pavilion Blvd U-turn	B	B
					NC 49 WB & Pavilion Blvd	B	B
NC 49 & I-485 Inner Ramps	D	D	F	F	NC 49 & I-485 Inner Ramps	F	F
NC 49 & I-485 Outer Ramps	B	B	F	D	NC 49 & I-485 Outer Ramps	F	D
E. Mallard Creek Church Rd & NE Quadrant Rd	-	-	-	-	E. Mallard Creek Church Rd & NE Quadrant Rd	B	B
Back Creek Church Rd & SW Quadrant Rd	-	-	-	-	Back Creek Church Rd & SW Quadrant Rd	B	B
Back Creek Church Rd & Hanberry Blvd	-	-	-	-	Back Creek Church Rd & Hanberry Blvd	C	B
Back Creek Church Rd Realigned & Back Creek Church Rd	-	-	-	-	Back Creek Church Rd Realigned & Back Creek Church Rd	E*	D*

Source: Traffic Analysis Technical Memorandum Addendum (NCDOT, 2019).
*Unsignalized intersection, LOS shown for worst-case critical unsignalized movement

Based on the traffic capacity analysis results, the 2040 design year Build Alternative 1 (Yellow), RCI with quadrant roads and an at-grade connection between E. Mallard Creek Church Road/Back Creek Church Road, provides adequate traffic capacity to accommodate the 2040 design year Build traffic volumes in the study area.

2.5 Crash Data

A total of 815 crashes were reported within the study area for the five-year period between March 1, 2014 and February 28, 2019 (NCDOT, 2019). The crash rate for total crashes is higher than the statewide average crash rate and critical crash rate for similar facilities in all categories except fatal (critical crash rate). The primary crash types for this segment of NC 49 are rear end, slow, or stop crashes (514 crashes or 63 percent); followed by angle (90 crashes or 11 percent); sideswipe, same

direction (75 crashes or 9 percent); and left turn same roadway crashes (44 crashes or 5 percent). A high frequency of rear end crashes is indicative of congested conditions.

Table 3 shows the number of crashes and crash rate within the project limits compared to both the statewide crash rate and the critical crash rate.

Table 3. Study Area Crash Rate Comparison

Crash Type	Total Crashes in Study Area	Total Crash Rate in Study Area[1]	Statewide Crash Rate[2]	Critical Crash Rate
Total	815	1,355.77	319.22	357.96
Fatal	1	1.66	1.03	4.02
Non-Fatal (Injury)	204	339.36	99.01	120.95
Night	280	465.79	71.85	90.67
Wet	150	249.53	50.93	66.90

[1] Crash data is for the period from March 1, 2014 to February 28, 2019. All crash rates are per 100 million vehicle miles traveled.
[2] 2013-2015 statewide crash rate for urban secondary roads
Source: NCDOT Crash Analysis Report, 2019

2.6 Other Proposed Improvements in the Project Area

According to the 2020-2029 STIP, the following projects are in the vicinity of U-5768 (see Figure 2):

- I-5798, I-485 pavement rehabilitation from I-85 to Rocky River Road
- U-5007, NC 51 widening from Matthews Township Parkway to SR 3128 (Lawyers Road)
- I-5860, I-85 pavement rehabilitation from SR 2472 (W Mallard Creek Church Road) to 0.8 mile north of SR 2467 (Mallard Creek Church Road)
- I-6017, I-85 and E. Mallard Creek Church Road interchange.

In addition to these projects, a developer is installing pedestrian improvements west of the project study area at the intersection of NC 49 and Suther Road.

2.7 Consistency with Local Plans

Both the proposed improvements to NC 49 and the proposed realignment of Back Creek Church Road are included in the 2017 CRTPO Comprehensive Transportation Plan and the 2045 CRTPO Metropolitan Transportation Plan (MTP). In addition to these studies, the project is mentioned in the following land use plans:

Northeast District Plan (Charlotte-Mecklenburg Planning Department, 1996) - This plan was developed under the original Centers and Corridors framework to guide growth and development, particularly along the US 29 and NC 49 corridors, the Outerloop (I-485) interchanges, Newell area, and Plaza Road/ Milton Road intersection. A more recent, 2013, Northeast District Adopted Future Land Use Map has been adopted by the Charlotte City Council. Both the original plan and the updated map show the realignment of Back Creek Church Road as part of the Eastern

Circumferential Road (ECR), and the closure of the at-grade railroad crossing and Back Creek Church Road intersection.

Rocky River Road Area Plan (Charlotte-Mecklenburg Planning Department, 2006) - The purpose of this plan was to provide a vision and guidance for growth in the area from NC 49 to SR 1514 (Rocky River Road) and east to Cabarrus County. This plan includes the realignment of Back Creek Church Road as part of the ECR.

UNC Charlotte Campus Master Plan Greenway Plan Update (UCP, 2007) - This plan identified the problems, needs, and aspirations of UNC Charlotte for the development of the campus and surrounding area. It provides guidance for programmatic growth in conjunction with physical development and available resources and includes the development of the LYNX Blue Line Extension (BLE) and Light Rail Transit (LRT) station on campus.

Greenway Plan Update (Mecklenburg County Parks and Recreation Department, 2008) - This plan provides an action program for Mecklenburg County to meet its vision, goals, and objectives outlined in the 1999 Greenway Plan. The plan identifies Back Creek and Toby Creek greenway corridors. Toby Creek Greenway will provide a connection along NC 49 under W.T. Harris Boulevard (NC 24) and reach its terminus at Autumnwood Lane. Back Creek Greenway is a proposed greenway that would parallel Back Creek within the study area.

Centers, Corridors, and Wedges Growth Framework (Charlotte-Mecklenburg Planning Department, 2010) - This plan provides guidance on the development of future area plans. Specifically, the amount of development appropriate in an area is determined by its classification as an Activity Center, Growth Corridor, or Wedge. The study area is within an Activity Center (University City) and a Growth Corridor (NC 49).

University City Area Plan (Charlotte-Mecklenburg Planning Department, 2015) - This plan is part of the Northeast Growth Corridor. The purpose of the plan is to guide future growth in the area surrounding the BLE and LRT stations that include UNC Charlotte main campus, J. W. Clay Boulevard/ UNC Charlotte, McCullough, and the areas adjacent to UNC Charlotte main campus and I-85. The current terminus of the BLE is on the UNC Charlotte campus at Cameron Boulevard. The plan guides growth and land use in the future, encouraging multi-modal transportation and connectivity. This plan serves as the Streetscape Plan for the area.

3. Alternatives Considered

A multi-disciplined approach was used to evaluate project alternatives. The public, local governments, major stakeholders, state and federal resource and regulatory agencies had roles in developing the project alternatives.

As described previously, multiple intersection types were evaluated in the 2017 Traffic Analysis and the 2019 Traffic Analysis Addendum. While these intersection alternatives were extensively evaluated, they had similar natural environmental impacts; NCDOT and CDOT are continuing coordination with UNC Charlotte and UCP on potential design refinements to continue to improve pedestrian accommodations. In addition to these evaluations, NCDOT's analysis focused on three detailed project alternatives: A No-Build Alternative, in which only routine maintenance activities

are anticipated through the project area and two Build Alternative for the realignment of Back Creek Church Road: Alternative 1 (Yellow) and Alternative 3 (Purple).

3.1 No-Build Alternative

A No-Build Alternative would not provide improvements to NC 49, Back Creek Church Road, nor the at-grade rail crossing in the study area. The No-Build Alternative is the baseline comparison alternative for the design year (2040). The No-Build Alternative would not improve existing or projected roadway capacity deficiencies or improve safety within the corridor. Only typical maintenance activities would be provided. As traffic volumes increase, it is anticipated that the total number of crashes would also increase. This alternative would not incur additional impacts to the natural or human environment, right of way or construction costs, or disruptions to stakeholders during construction.

The No-Build Alternative does not meet the purpose and need for the project. The No Build Alternative was retained to provide a baseline for comparison of the other alternatives in accordance with SEPA and permitting expectations associated with Section 404 of the Clean Water Act.

3.2 Build Alternative Analysis

Several proposed intersection types for NC 49 and a realigned Back Creek Church Road/E. Mallard Creek Church Road were evaluated in the traffic analysis. The initial analysis reviewed the No-Build Alternative and three build options: Option 1 (6-Lane Conventional Widening), Option 2 (6-Lane RCI), and Option 3 (6-Lane RCI Hybrid). The 2019 Traffic Analysis Addendum further reviewed seven build alternatives. These included Options 1 through 3 with quadrant intersections, as well as at-grade and grade-separated alternatives for the intersection of realigned Back Creek Church Road/E. Mallard Creek Church Road with NC 49.

During coordination with resource agencies, NCDOT evaluated possible realignment options for Back Creek Church Road that were originally developed with the ECR study. These concepts (Yellow, Blue (Options 1 and 2), Orange, Red, and Purple) were evaluated with agency input as described in Appendix D. Of these options, two were carried forward for detailed study: Alternative 1 (Yellow Option) and Alternative 2 (Purple Option) as described below and documented in Appendix D.

Alternative 1 (Yellow Option)

The Yellow Option would utilize the railroad grade separation constructed for STIP Project P-5208 and the ECR corridor protected by the City of Charlotte. This was the preferred option from the 1989 ECR study. There are no current operational issues associated with this option. Based on the 2017 U-5768 Traffic Analysis Technical Memorandum and 2019 U-5768 Traffic Analysis Addendum, the Yellow Option meets the purpose and need of the project by functioning at an overall level of LOS D or better in the design year.

Alternative 2 (Purple Option)

The Purple Option was developed at the request of the Merger Team and would cross Back Creek before making a westerly turn to join the Yellow Option. The Purple Option would utilize more of

the existing Back Creek Church Road alignment than the Yellow Option, thereby reducing stream impacts. The Purple Option would utilize the railroad grade separation constructed for STIP Project P-5208, similar to the Yellow Option.

The Purple Option would impact lands set aside by Mecklenburg County for a park and greenway hub (UCP, 2015). The option was further reviewed at the request of the US Army Corps of Engineers (USACE) and CDOT to determine if the design could avoid superelevated curves (i.e., banking), which are not compatible with multi-modal accommodations. Based on a preliminary review, it appeared that designs could avoid banking; however, verification would be necessary.

The Purple Option would tie in to the existing Back Creek Church Road north of Back Creek. Existing Back Creek Church Road would be widened to the proposed southern terminus of the Yellow Option to allow for improvements past existing subdivisions. It is assumed that the widening of existing Back Creek Church Road would be to the west to avoid any potential impacts to the Back Creek stream mitigation site, located on the east side of the Back Creek Church Road crossing of Back Creek.

3.3 Detailed Study Alternatives Carried Forward

During a meeting with the Merger Team on July 19, 2018 (see Appendix D), the above options were evaluated to determine if they met purpose and need, were practicable, and had the potential to be considered a LEDPA. Table 4 summarizes those discussions, with the alternatives carried forward shown in bold.

Table 4. Summary of Back Creek Church Road Alternatives Considered for Carrying Forward

Option	Meets Purpose and Need	Practicable	Potential to be LEDPA	Carried Forward
Yellow	**Yes**	**Yes**	**Yes**	**Yes**
Blue Option 1	No	No	No	No
Blue Option 2	Yes	No	No	No
Purple	**Yes**	**Yes**	**Yes**	**Yes**
Orange	No	No	No	No
Red	No	No	No	No

Based on the July 19, 2018 concurrence meeting, the following Back Creek Church Road alternatives were carried forward for detailed study under the Back Creek Church Road realignment portion of the project:

- No-Build Alternative: This alternative would maintain existing facilities but would not address the purpose and need of the project. It is included as a basis of comparison.
- Alternative 1 (Yellow Option): Best-fit widening of NC 49; relocation of Back Creek Church Road to the intersection of NC 49 and E. Mallard Creek Church Road using the railroad

bridge constructed as part of STIP Project P-5208; and traffic flow and connectivity improvements to Old Concord Road and Thomas Combs Drive.

- Alternative 2 (Purple Option): Best-fit widening of NC 49; relocation of Back Creek Church Road to the intersection of NC 49 and E. Mallard Creek Church Road north of the existing crossing of Back Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208; and traffic flow and connectivity improvements to Old Concord Road and Thomas Combs Drive.

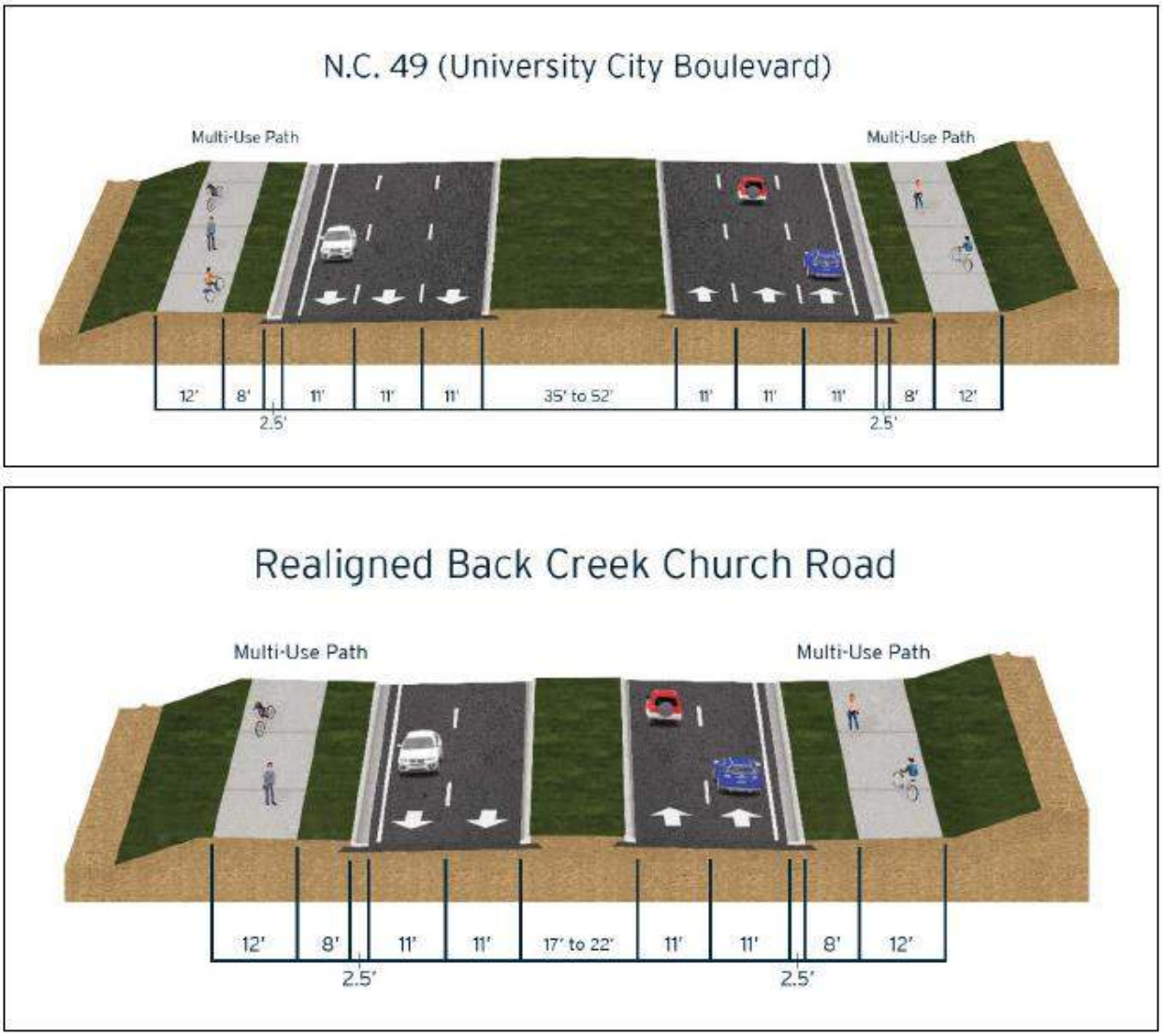
3.4 Proposed Improvements Common to Both Alternatives

The two build alternatives would construct a four- to six-lane facility using RCI concepts along NC 49, including a variable-width median, restricted left-turn movements, directional crossovers, and median U-turns. For both NC 49 and Back Creek Church Road, the alternatives also include bicycle and pedestrian accommodations based on preliminary requests from the City of Charlotte and UNC Charlotte, and to facilitate safe and efficient movement for all modes of transportation. For NC 49, NCDOT recommends the following typical section shown in Exhibit 3: 12-foot multi-use path, 8-foot planting strip, 2.5-foot curb and gutter system, three 11-foot lanes, a median with median width varying from 35 to 52 feet to allow for U-turns and pedestrian storage, three 11-foot lanes, 2.5-foot curb and gutter system, 8-foot planting strip, and a 12-foot multi-use path.

For the realigned portion of Back Creek Church Road, NCDOT recommends the following typical section shown in Exhibit 3: 12-foot multi-use path, 8-foot planting strip, 2.5-foot curb and gutter system, two 11-foot lanes, a median with median width varying from 17 to 22 feet, two 11-foot lanes, 2.5-foot curb and gutter system, 8-foot planting strip, and a 12-foot multi-use path.

For the proposed bridge over Back Creek, NCDOT recommends the following typical section: Bridge rail (anticipated to be Two-Bar Metal Rails), 12-foot multi-use path, 6-inch curb, 2-foot gutter pan, two 11-foot lanes, 17-foot raised concrete median, two 11-foot lanes, 2-foot gutter pan, 6-inch curb, 12-foot multi-use path, bridge rail. The deck width would be approximately 91 feet.

Exhibit 3. Project Typical Sections



3.5 Alternatives Analysis

Although Alternatives 1 and 2 are very similar, the alignment of Alternative 1 (Yellow Option) offered the following advantages when compared to Alternative 2 (Purple Option):

- Provides better horizontal alignment, which, in turn, provides better operations;
- Accommodates the proposed Back Creek Park while avoiding impacts to the Back Creek Stream Mitigation site;
- Allows connections to several subdivisions including: Villages at Back Creek, University Commons, and Wyndham Place;
- Accommodates proposed Back Creek Greenway trailhead in the proposed park;
- Impacts fewer residential and commercial properties;
- Is supported by the City of Charlotte and Mecklenburg County; and

- Based on public input received after the April 23, 2019 public meeting for the project, Alternative 1 (Yellow Option) was preferred by 16 of the 17 stakeholders who voiced an alternative preference.

3.6 Preferred Alternative/LEDPA

NCDOT recommended Alternative 1 (Yellow Option) as its Preferred Alternative. The Merger Team concurred with this recommendation at the August 14, 2019 meeting of the Merger Team. This concurrence established that NCDOT's Preferred Alternative is also the LEDPA.

4. Estimated Costs

Based on data from the NCDOT 2020-2029 STIP, combined with a construction cost estimate based on the current level of design, it is estimated that the proposed project would cost approximately $63 million as shown in Table 5. More detailed right of way and utility construction cost estimates are currently under development and all cost estimates will be refined as the project designs move forward.

Table 5. U-5768 Estimated Project Costs

Cost Element	Cost
Right of way	$1,300,000
Utilities	$1,300,000
Construction	$59,191,000
Mitigation	$925,000
Total	**$62,716,000**

Source, NCDOT 2020-2029 STIP, NCDOT, June 2019

5. Environmental Effects of the Proposed Action

This section details the existing environment and direct impacts within the study area based on the anticipated limits of roadway construction (slope stake limits) plus a 40-foot buffer, using a functional level of design for the Preferred Alternative. Avoidance and minimization opportunities will continue to be pursued for all impacts during final design. This section also discusses the indirect and cumulative impacts of the proposed project. Resources are shown in Figure 3.

5.1 Natural Resources

Resource information pertaining to the natural environment was gathered and reviewed in the *Natural Resources Technical Report* (NRTR) (NCDOT, 2016 Update) for this project. Initial field work was conducted May through October 2015, with subsequent field work in July and August 2016. Mussel surveys were carried out in April 2018, and a Section 7 survey for Northern Long-Eared bat was completed in January 2019 (NCDOT 2019A). The findings are summarized in the following sections.

Topography

The study area is in the Piedmont physiographic province of North Carolina. Topography in the project vicinity is generally characterized as gently rolling, well rounded hills and long low ridges. Elevations within the study area range from approximately 650 ft to 750 ft above mean sea level.

Floodplains

The 100-year floodplain for Back Creek is located within the study area. Using slope stake limits plus 40 feet, this project impacts approximately 1 acre of floodplain. Floodplain impacts are not anticipated in the final design of the project.

Soils

There are twelve soil types within the study area. They range from poorly drained to well drained and are generally nonhydric. Soil slopes range can reach 15 to 25 percent in some areas. This project is not anticipated to have a substantial impact on area soils.

Biotic Resources

Four terrestrial communities were identified in the study area: maintained/ disturbed land, mesic mixed hardwood forest, piedmont/ low mountain alluvial forest, and successional forest. These communities are fairly common in the project vicinity and are described in more detail in the NRTR.

Water Resources

Waters in the study area are all within the Yadkin Pee Dee River Basin (US Geological Survey Hydrologic Unit Code 03040105). All are designated class C waters by the NC Division of Water Resources.

There are no designated anadromous fish waters or Primary Nursery Areas present in the study area. There are no designated High Quality Waters, Outstanding Resource Waters, or water supply watersheds (WS-I or WS-II) within 1.0 mile downstream of the study area. The North Carolina 2018 Final 303(d) list of impaired waters identifies Mallard Creek (from its source to the mouth of Stoney Creek) as an impaired water due to turbidity, and from Stoney Creek to Rocky River as exceeding the criteria for copper. Back Creek, from its source to Rocky River, is listed as an impaired water due to a Fair benthos rating (NCDEQ, 2019).

Waters of the US

Section 404 of the Clean Water Act requires regulation of discharges into "Waters of the United States." The US Environmental Protection Agency (USEPA) is the principal administrative agency of the Clean Water Act. However, the USEPA has delegated authority to the USACE for the responsibility of implementation, permitting, and enforcement of the provisions of the Clean Water Act. Impacts to surface waters (lakes, rivers, and streams) and wetlands are subject to jurisdictional consideration under the Section 404 program. Any action that proposes to place fill into these areas falls under the jurisdiction of USACE under Section 404 of the Clean Water Act (33 USC 1344).

Thirteen jurisdictional streams were identified in the study area as indicated in Table 6 and shown in Figure 5. The Preferred Alternative may impact approximately 2,570 feet of stream when measured using slope stake limits plus 40 feet.

Table 6. Jurisdictional Characteristics of Stream Resources in the Project Study Area

Stream (MAP ID)	Classification	Compensatory Mitigation Required?	River Basin Buffer	Study Area Length (ft)	Impact Length (ft)*
SA	Intermittent	Yes	No	124	0
SB	Perennial	Yes	No	587	0
SC	Perennial	Yes	No	3,229	1,010
SF	Perennial	Yes	No	2,657	0
SG	Perennial	Yes	No	279	0
SH	Perennial	Yes	No	2,274	0
SI	Intermittent	Yes	No	149	0
SJ	Intermittent	Yes	No	279	0
SK	Intermittent	Yes	No	75	0
SL	Perennial	Yes	No	2,462	460
SM	Perennial	Yes	No	1,118	1,100
SN	Intermittent	Yes	No	174	0
SO	Intermittent	Yes	No	46	0
			Total:	13,450	2,570

*Impacts measured using slope stake limits plus 40 feet., rounded to the nearest 10 feet
Source: NCDOT, Natural Resources Technical Report, 2016

Twenty-four wetlands were identified within the study area and shown in Table 7and Figure 5. The Preferred Alternative may impact approximately 0.8 acre of jurisdictional wetlands as measured using slope stake limits plus 40 feet.

Table 7. Jurisdictional Characteristics of Wetland Resources in the Project Study Area

MAP ID	Classification	Hydrologic Classification	NCDWR Wetland Rating	Area (ac)	Impact Area (ac)*
WA	Basin Wetland	Non- riparian	39	0.1	0
WB	Headwater Forest	Riparian	64	0.4	0
WC	Headwater Forest	Riparian	61	0.1	0
WD	Headwater Forest	Riparian	61	0.5	0.2
WE	Headwater Forest	Riparian	61	<0.1	0
WF	Headwater Forest	Riparian	61	0.4	0
WG	Headwater Forest	Riparian	61	0.1	0.1
WH	Bottomland Hardwood Forest	Riparian	68	0.1	0
WI	Bottomland Hardwood Forest	Riparian	68	0.5	0
WJ	Bottomland Hardwood Forest	Riparian	69	0.3	0
WK	Bottomland Hardwood Forest	Riparian	56	2.7	0
WL	Bottomland Hardwood Forest	Riparian	56	0.2	0
WM	Headwater Forest	Riparian	43	0.1	0
WN	Headwater Forest	Riparian	59	0.3	0
WO	Headwater Forest	Riparian	37	0.1	0
WP	Headwater Forest	Riparian	59	0.6	0
WQ	Headwater Forest	Riparian	59	0.2	0
WR	Bottomland Hardwood Forest	Riparian	54	1.0	0
WS	Bottomland Hardwood Forest	Riparian	56	0.1	0.1
WT	Bottomland Hardwood Forest	Riparian	56	0.2	0.2
WU	Headwater Forest	Riparian	49	0.1	0
WV	Bottomland Hardwood Forest	Riparian	41	0.1	0
WW	Bottomland Hardwood Forest	Riparian	56	0.2	0
WX	Headwater Forest	Riparian	39	0.3	0.2
			Total:	8.8	0.8

*Impacts measured using slope stake limits plus 40 feet, rounded to the nearest 0.1 acre
Source: NCDOT, Natural Resources Technical Report (2016 Update), 2016

Protected Species

As of June 27, 2018, the US Fish and Wildlife Service (USFWS) lists six species that are threatened or endangered in Mecklenburg County. Table 8 provides a summary of the listed species and the biological conclusion of each. NCDOT has committed to updating surveys for these species prior to permitting.

Table 8. Federally Protected Species in Mecklenburg County

Scientific Name	Common Name	Federal Status[1]	Habitat Present	Biological Conclusion
Myotis septentrionalis	Northern long-eared bat	T	N/A (4d Rule)	May Affect Not Likely to Adversely Affect; NLEB exempt from Section 7 Consultation under the 4(d) Rule
Lasmigona decorata	Carolina heelsplitter	E	No	No Effect
Rhus michauxii	Michaux's sumac	E	Yes	No Effect
Helianthus schweinitzii	Schweinitz's sunflower	E	Yes	No Effect
Echinacea laevigata	Smooth coneflower	E	Yes	No Effect
Bombus affinis	Rusty-patched bumble bee	E	--	N/A[2]

[1] E = Endangered, T = Threatened
[2] N/A- The USFWS does not and will not require surveys for RPBB in North Carolina because USFWS assumes that it is unoccupied by RPBB
Source: NCDOT, Natural Resources Technical Report (2016 Update), 2016, NCDOT 2018, NCDOT, 2019

Northern long-eared bat

USFWS Recommended Survey Window: June 1 – August 15

Biological Conclusion: May Affect Not Likely to Adversely Affect; NLEB exempt from Section 7 Consultation under the 4(d) Rule

A review of NC Natural Heritage Program's (NCNHP) records, updated July 2016, indicates no NLEB occurrences within 1.0 mile of the study area. NCDOT developed Section 7 survey results in January 2019.

NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R § 17.40 (o) and effective February 16, 2016. NCDOT may presume its determination is informed by best available information and consider Section 7 responsibilities fulfilled for NLEB.

Carolina heelsplitter

USFWS Recommended Survey Window: year-round

Biological Conclusion: No Effect

NCDOT-Biological Surveys Group conducted surveys for the Carolina heelsplitter in January 2018 and concluded the project would have no effect on the species.

Michaux's sumac

USFWS Recommended Survey Window: May-October

Biological Conclusion: No Effect

Suitable habitat for the Michaux's sumac is present within the study area along the roadside margins, successional forest, and within existing easements. Forested areas outside of the maintained NCDOT rights of way and existing easements have a closed canopy that does not provide suitable habitat for this species. NCDOT conducted species-specific surveys for Michaux's sumac in May 2015 and August 2016. No individuals were identified in the study area. A review of NCNHP records, updated July 2016, indicates no occurrences of Michaux's sumac within 1.0 mile of the study area.

Schweinitz's sunflower

USFWS Recommended Survey Window: late August-October

Biological Conclusion: No Effect

Suitable habitat for Schweinitz's sunflower is present within the project study area along the roadside margins, successional forest, and within existing easements. Forested areas outside of the maintained NCDOT rights of way and existing easements have a closed canopy that does not provide suitable habitat for this species. NCDOT conducted surveys for Schweinitz's sunflower in October 2015 and August 2016. No individuals were identified in the study area. A review of NCNHP records, updated July 2016, indicates no Schweinitz's sunflower occurrences within 1.0 mile of the study area.

Smooth coneflower

USFWS Recommended Survey Window: late May-October

Biological Conclusion: No Effect

Suitable habitat for smooth coneflower is present within the study area along the roadside, successional forest, and within existing easements. Forested areas outside of the maintained NCDOT rights of way and existing easements have a closed canopy that does not provide suitable habitat for this species. NCDOT conducted species-specific surveys for smooth coneflower in May 2015 and August 2016. No individuals were identified in the study area. A review of NCNHP records, updated July 2016, indicates no smooth coneflower occurrences within 1.0 mile of the study area.

Rusty-patched bumble bee

USFWS Recommended Survey Window: June 1-August 15

Biological Conclusion: Not Applicable

The USFWS lists Rusty-patched bumble bee (RPBB) as a historic record for Mecklenburg County. Additionally, the USFWS does not and will not require surveys for RPBB in North Carolina because USFWS assumes the state is unoccupied by RPBB.

Bald and Golden Eagle Protection Act

A desktop-GIS assessment of the project study area, as well as the area within a 1.13-mile radius (1 mile plus 660 feet) of the project limits, was performed in June 2015 using 2014 color aerials. No water bodies large enough or sufficiently open to be considered potential feeding sources were identified. Since there was no foraging habitat within the review area, a survey of the project study area and the area within 660 feet of the project limits was not conducted. Additionally, a review of the NCNHP database, updated July 2016, revealed no occurrences of this species within 1.0 mile of the project study area. Due to the lack of habitat, known occurrences, and minimal impact anticipated for this project, it has been determined that this project will not affect this species.

5.2 Human Environment

Resource information pertaining to the human environment was gathered and summarized in NCDOT's Community Characteristics Report (2015) and Community Impact Assessment (2019E) for this project.

Community Resources and Land Use

It is anticipated that the Preferred Alternative should not have a considerable effect on local land use or character. The existing zoning districts within the study area consist of a variety of business and industrial uses (B-1, CC, I-2, and INST), mixed use development (MX-2 (INNOV) and MUD-O), and residential uses (R-3, R-4, and R-8MF-CD). It is not anticipated that the project will change current land use designations in the study area.

No notable adverse community impacts are anticipated with this project; thus, impacts to minority and low-income populations do not appear to be disproportionately high and adverse. Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community. No disparate impacts are anticipated under Title VI and related statutes.

Commercial properties, individual homes and neighborhoods are located adjacent to the NC 49 and Back Creek Church Road corridors. Communities in the subject area include but are not limited to: The College Downs apartment complex, the Halton Park apartment complex, the Villages at Back Creek – University Heights apartment complex, the Back Creek subdivision, the Back Creek Chase subdivision, the University Commons apartment complex, the Wyndham Place subdivision, and the Winding Creek subdivision.

Neighborhoods and communities may experience some disruption during construction; however, no permanent impacts to neighborhoods or communities are expected.

Potential Relocations

Due to the proximity of homes to the existing edge of right of way, it is anticipated that relocations will be required. Based on current slope stake limits and the anticipated construction of an on-

site detour to accommodate lowering NC 49 and E. Mallard Creek Church Road, it is anticipated that approximately 16 businesses and 3 homes will be relocated for the Preferred Alternative.

Bicycle and Pedestrian Accommodations

NCDOT has coordinated with the City of Charlotte and UNC Charlotte to ensure appropriate bicycle and pedestrian accommodations along the project corridor. As shown in the project typical sections, both the improvements to NC 49 and Back Creek Church Road include multi-use paths. To promote pedestrian crossings, the proposed lane widths for NC 49 in the project area were reduced to 11 feet from the standard 12 feet, and the speed limit on NC 49 through the project area will be reduced to 35 mph.

The proposed project will also increase the number of signalized pedestrian crossings on NC 49. Currently, there are four signalized, High-Intensity Activated crossWalK beacon (HAWK) crossings on NC 49 through the project area: one is located at the western terminus of the project, in addition to those at the NC 49 intersections with John Kirk, Drive, E. Mallard Creek Church Road, and Pavilion Boulevard. The proposed project would add two additional mid-block crossings, ensuring that pedestrians would not be more than 550 feet from a signalized crossing.

The project would close the existing intersection at Back Creek Church Road. This would require pedestrians in the area of Back Creek Church to use Hanberry Boulevard and the realigned Back Creek Church Road to access destinations north of NC 49, increasing pedestrian and bicycle trips from those areas by up to 0.6 mile in each direction. However, this new route eliminates pedestrian and bicycle crossings of the NS/NCRR railroad corridor, providing a safer crossing and multi-use paths that are compliant with Americans with Disabilities Act requirements.

Railroads

The project study area is traversed by a rail line operated by the NCRR/NS. Under a previous NCDOT double-track rail improvement project (STIP Project P-5208), a railroad bridge was constructed south of NC 49 to accommodate a future roadway underpass and allow for the future closure of the existing at-grade railroad crossing of Back Creek Church Road, just south of NC 49. As stated previously, between 2000 and 2018, there have been seven vehicle/train crashes at the existing at-grade crossing location. Current typical train traffic is 38 trains per day. It is estimated that future train volumes in the project area will exceed 60 trains per day by the design year of the project (2040). The Preferred Alternative will remove the current at-grade crossing thus eliminating train/vehicle conflicts.

Utilities

There are major utilities within the study area, including water and sewer service, Piedmont Natural Gas Company underground lines, and underground telephone cables. An east-west Duke Energy power line easement is located south of Back Creek. Construction of the Back Creek bridge for the Preferred Alternative would take place outside the utility easement.

Public Lands, Scenic and Recreation Areas

Mecklenburg County has identified a proposed public park in the study area. The park would include minimal facilities but would serve as a trail head for the proposed Back Creek Greenway.

Mecklenburg County developed an Initial Biodiversity Assessment of the property which stated that the site "falls within the Back Creek Corridor Natural Heritage Site" and is "recommended for protection as a county nature preserve." The report notes several mature forest stands; "also observed was a woodland pool, which may be providing important breeding habitat for several amphibian species" (Mecklenburg County, 2014).

It is anticipated that the park would provide restroom, picnic, and parking facilities but would remain largely wooded with nature trails. The bridge over Back Creek for the Preferred Alternative would also accommodate the proposed Back Creek Greenway and would allow vehicular access to the proposed park, which would have a parking lot and connector to the greenway.

The proposed park was envisioned to be accessible via the relocated Back Creek Church Road of the Preferred Alternative with parallel impacts of 1.7 acres based on slope stake limits plus 40 feet. Alternative 2 (Purple Option) would cut through the proposed park, with 4.4 acres of direct impacts.

Cultural Resources

Architectural History

NCDOT carried out a historic architectural resources study in April 2016 in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and guidelines set forth by the NCDOT and the State Historic Preservation Office (HPO), including the 2015 Programmatic Agreement for Minor Transportation Projects. NCDOT determined that there were no properties listed on the National Register of Historic Places (NRHP) and no other resources of concern located in the Area of Potential Effects (APE). NCDOT evaluated an extension of the study area in July 2019 (NCDOT 2019B) and concluded that, as currently defined, the project may be considered in compliance with both GS 121-12(a) and Section 106 for historic architecture. A summary of historic architecture evaluations for the project is included in Appendix B.

Archaeology

In compliance with the 2015 Amended Programmatic Agreement for Minor Transportation Projects in North Carolina the NCDOT-EAU Archaeology Group reviewed the project in November 2017. As a result of that review, NCDOT determined that the presence of intact, significant archaeological sites is low, and no archaeological survey is required. Based on an expansion of the study area, NCDOT further evaluated the project and affirmed its earlier conclusions. A summary of archaeological evaluations for the project is included in Appendix B

Farmland

North Carolina Executive Order 96, Preservation of Prime Agricultural and Forest Lands requires all state agencies to consider the impact of land acquisition and construction projects on prime and statewide important farmlands soils, as designated by the Natural Resources Conservation Service (NRCS). As the project study area is within the US Census Bureau identified Urban Area for Charlotte, NC, by definition, no farmland soil areas are present. In addition, there are no Voluntary Agricultural Districts present in the project study area.

Air Quality

Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter (PM), sulfur dioxide (SO2), and lead (Pb) (listed in order of decreasing emission rate).

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS). These were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The NAAQS contain criteria for SO2, PM10 (10-micron and smaller), PM 2.5 (2.5 micron and smaller), CO, nitrogen dioxide (NO2), ozone (O3), and Pb.

The primary pollutants from motor vehicles are unburned hydrocarbons (HC), nitrogen oxides (NOx), CO, and particulates. HC and NOx can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as O3 and NO2. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. These pollutants are regional problems.

A project-level air quality analysis was prepared for this project, as documented in NCDOT's U-5768 Air Quality Report in October 2019 (NCDOT 2019D).

Conformity Status

The project is in Mecklenburg County, which is within the Charlotte-Gastonia-Rock Hill, NC-SC maintenance area for the 1997 ozone NAAQS as defined by the Environmental Protection Agency (EPA). This area was designated as "moderate nonattainment" under the 1997 ozone NAAQS on June 15, 2004 and due to improved air quality in the region was re-designated as "maintenance" on January 2, 2014. The Charlotte-Gastonia-Rock Hill, NC-SC maintenance area was designated as "marginal nonattainment" for the 2008 ozone NAAQS resulting in the 1997 ozone NAAQS being revoked on April 6, 2015. On February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in South Coast Air Quality Mgmt. District v. EPA ("South Coast II," 882 F.3d 1138) held that transportation conformity applies for the revoked 1997 ozone NAAQS areas. Transportation conformity for plans and TIPs for the 1997 Ozone NAAQS can be demonstrated without a regional emissions analysis pursuant to Title 40 of the Code of Federal Regulations (CFR) Part 93 Section 109(c).

The project is in Mecklenburg County, which is within the Charlotte-Gastonia-Rock Hill, NC-SC maintenance area for the 2008 ozone NAAQS as defined by the EPA. The area was designated as "marginal nonattainment" under the 2008 ozone NAAQS on July 20, 2012 and due to improved air quality in the region was re-designated as "maintenance" on August 27, 2015. Section 176(c) of the Clean Air Act Amendments of 1990 (CAAA) requires that transportation plans, programs, and projects conform to the intent of the state air quality implementation plan (SIP). The current SIP does not contain any transportation control measures for Mecklenburg County. The CRTPO 2045 MTP and the 2018-2027 Transportation Improvement Program (TIP) conform to the intent of the SIP. The USDOT made a conformity determination on the MTP on December 3, 2018 and

the TIP on December 3, 2018. The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51and 93. There are no significant changes in the project's design concept or scope, as used in the conformity analyses.

Mobile Source Air Toxics (MSAT)

The amount of MSATs emitted under either the No-Build or Preferred Alternative for the proposed project would be proportional to the VMT assuming that other variables such as fleet mix are the same for each scenario. The VMT estimated for the Preferred Alternative is projected to be higher than in the No-Build Alternative as shown in Table 9. VMT would increase 18.8 percent for the Preferred Alternative in the 2040 Build scenario. The differences between the No-Build and Preferred Alternative can be attributed to the additional traffic-carrying capacity along NC 49 and the realignment of Back Creek Church Road, as well as the slight increase in travel distance due to the realignment of Back Creek Church Road.

Table 9. 2040 Vehicle Miles Traveled

Scenario	2040 Vehicle Miles Traveled (VMT)	Percent Change in VMT Compared to No-Build Alternative
No-Build	86,136	
Preferred Alternative	102,326	18.8

Source: Project Level Traffic Forecast Report, TIP Project U-5768.

Under the Preferred Alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. The additional travel lanes that are part of the Preferred Alternative would have the effect of moving some traffic closer to nearby homes and businesses. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections of the realigned Back Creek Church Road where it passes adjacent to several residential areas. The additional travel lanes along NC 49 would also increase MSAT emissions but this would be offset somewhat by lower MSAT emission rates due to increased speeds; according to the EPA's MOVES2014 model, emissions of all the priority MSAT decrease as speed increases. The localized decreases would likely be most pronounced along the remnant Back Creek Church Road since most traffic would be rerouted to the realigned section. There are residential uses and a church along this road that would see a reduction in traffic due to road realignment and closing of the railroad crossing at NC 49. However, even if these increases do occur, they too will be reduced in the future due to implementation of EPA's vehicle and fuel regulations, as discussed below.

Emissions will likely be lower than present levels in the design year as a result of the EPA's national control programs that are projected to reduce annual MSAT emissions by over 90 percent from 2010 to 2050 (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Incomplete or Unavailable Information for Project Specific MSAT Health Impact Analysis.

In the Federal Highway Administration's (FHWA's) view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

Because of the limitations in the methodologies for forecasting health impacts, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

More information on the uncertainties surrounding MSATs can be found in Section 8.0 of the U-5768 Air Quality Report.

Summary

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways, or the widening of existing highways, increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

A qualitative MSAT analysis for this project indicates that future emissions will likely be lower than current levels even with increased VMT due to EPA's vehicle and fuel controls, consistent with what is modeled and observed at the national level. Therefore, the U-5768 project is not anticipated to create any adverse effects on the air quality of the Mecklenburg County ozone maintenance area, thereby complying with the NAAQS.

Highway Traffic Noise

In accordance with 23 CFR Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise and the NCDOT Traffic Noise Policy, each Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed State or Federal highway projects that construct a highway on new location, add new through lanes to an existing highway, substantially change the horizontal or vertical alignment of an existing highway, add or relocate interchange ramps or loops to complete an existing partial interchange, or involve new construction or substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots or toll plazas.

Traffic noise impacts are determined through implementing the current Traffic Noise Model (TNM®) approved by the FHWA and following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Policy and the NCDOT Traffic Noise Manual. When traffic noise impacts are

predicted, examination and evaluation of alternative noise abatement measures must be considered for reducing or eliminating these impacts. Construction noise impacts may occur if noise-sensitive receptors are in proximity to project construction activities. All reasonable efforts should be made to minimize exposure of noise sensitive areas to construction noise impacts.

The traffic noise analysis is documented in the STIP Project U-5768 Traffic Noise Report (NCDOT 2019C).

Traffic Noise Impacts and Noise Contours

The maximum number of receptors in the Preferred Alternative predicted to become impacted by future traffic noise is shown in Table 10. The exhibit includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by a substantial increase in exterior noise levels as defined in the NCDOT Traffic Noise Policy.

Table 10. Predicted Traffic Noise Impacts for Build Alternative[1]

Alternative	Traffic Noise Impacts			
	Residential (NAC B)	Places of Worship/Schools, Parks, etc. (NAC C &D)	Businesses (NAC E)	Total
Preferred Alternative	159	0	1	160

[1]Per TNM 2.5 and in accordance with 23 CFR Part 772
Source: Traffic Noise Report, NCDOT 2019C

Traffic Noise Abatement Measures

Measures for reducing or eliminating the traffic noise impacts were considered for all impacted receptors. The primary noise abatement measures evaluated for highway projects include highway alignment changes, traffic system management measures, establishment of buffer zones, noise barriers and noise insulation (NAC D only). For each of these measures, benefits versus allowable abatement quantity (reasonableness), engineering feasibility, effectiveness and practicability and other factors were included in the noise abatement considerations.

Substantially changing the highway alignment to minimize noise impacts is not considered to be a viable option for this project due to engineering and/or environmental factors. Traffic system management measures are not considered viable for noise abatement due to the negative impact they would have on the capacity and level of service of the proposed roadway. Costs to acquire buffer zones for impacted receptors will exceed the NCDOT base dollar value of $22,500 per benefited receptor plus an incremental increase as defined in the NCDOT Traffic Noise Manual, causing this abatement measure to be unreasonable.

Noise Barriers

Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb and reflect highway traffic noise. For this project, earthen berms are not found to be a viable abatement measure because the additional right of way, materials and construction costs are estimated to exceed the NCDOT maximum allowable base quantity of 4,200 cubic yards per benefited receptor plus an incremental increase as defined in the NCDOT Traffic Noise Policy.

A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by the FHWA. Table 11 summarizes the results of the evaluation.

Table 11. Preliminary Noise Barrier Evaluation Results

NSA	Noise Barrier and Location Description	Length / Height[1] (feet)	Square Footage	Number of Benefited Receptors	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction[2]
NSA 1	NW 1 – NC 49 WB, north side of sidewalk in front of University Terrace apartments	420 / 17	7,236	21	315 / 1,500	Yes
NSA 2	NW 2.1 – NC 49 EB, south side of sidewalk, east of University Walk apartment entrance	N/A	N/A	N/A	N/A	Not Reasonable[3]
NSA 2	NW 2.2– west side of realigned Back Creek Church Road, north of the northern Hanberry Boulevard intersection	N/A	N/A	N/A	N/A	Not Feasible[4]
NSA 2	NW 2.3 – west side of realigned Back Creek Church Road, north and south of the southern Hanberry Boulevard intersection	N/A	N/A	N/A	N/A	Not Feasible[4]
NSA 3	NW 3 – east side of Pavilion at UC apartment complex, west of I-485 South exit ramp	N/A	N/A	N/A	N/A	Not Feasible[4]
NSA 4	NW 4 – east side of realigned Back Creek Church Road, north of the northern Hanberry Boulevard intersection	N/A	N/A	N/A	N/A	Not Feasible[4]

[1] Average wall height. Actual wall height at any given location may be higher or lower.
[2] The likelihood of a barrier's construction is preliminary and subject to change, pending completion of final design and the public involvement process.
[3] Barrier is not reasonable due to an inability to achieve the minimum noise reduction design goal of 7 dB(A) for at least one benefited receptor
[4] Barrier is not feasible due to an inability to achieve a minimum of 5 dB(A) of noise reduction for at least two impacted receptors.
Source – NCDOT Traffic Noise Report, September 2019

Summary

A traffic noise evaluation was performed that identified one noise barrier (NSA 1) that preliminarily meets feasibility and reasonableness criteria found in the 2016 NCDOT Traffic Noise Policy. Noise barriers preliminarily found to be feasible and reasonable during the preliminary noise analysis may not be found to be feasible and reasonable during the final design noise analysis due to changes in proposed project alignment and other design considerations, surrounding land use development, or utility conflicts, among other factors. Conversely, noise barriers that preliminarily were not considered feasible and reasonable may meet the established criteria and be recommended for construction. Based on input from NCDOT and the City of Charlotte, it was determined that the identified noise wall was not practicable in this location and will not be constructed.

In accordance with NCDOT Traffic Noise Policy, Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the proposed highway project will be the approval date of this SEA/FONSI. NCDOT strongly advocates the planning, design and construction of noise-compatible development and encourages its practice among planners, building officials, developers, and others.

Hazardous Materials

The NCDOT GeoEnvironmental Section performed a records search of readily available information for the project study area and identified nine underground storage tank (UST) facilities within the project study area. In addition, two dry cleaners and one car wash site were identified. All identified sites were anticipated to present low geoenvironmental impacts to the project. Table 11 lists the identified sites and their level of anticipated impact to the project.

Table 11. Potential Hazardous Materials Sites in the Project Study Area

Site	Location	UST Facility ID	Property Name	Anticipated Impact	Comments
1	9501 University City Blvd	0-014399	Circle K Gas Station/ Car Wash	Low	Active gas station with 4 USTs. 3 monitoring wells observed
2	9608 University City Blvd	0-035582	Sam's Mart 14 Gas Station/ Car Wash/ Oil Change	Low	5 registered USTs. 4 monitoring wells observed
3	9740 University City Boulevard	0-017117	ABC Store, formerly 7-11 Store	Low	No USTs or monitoring wells were observed on site
4	9810 University City Blvd	0-017117	Wilco Fuel Plaza 375	Low	Inactive gas station, underground piping and USTs remain on site
5	10022 Hwy 49	0-013927	Express Stop BP	Low	3 active USTs, 6 groundwater monitoring wells observed

Table 11. Potential Hazardous Materials Sites in the Project Study Area

Site	Location	UST Facility ID	Property Name	Anticipated Impact	Comments
6	10110 University City Boulevard	NA	University City Tires/ U-Haul/ Oil Change	Low	Tire, oil change, and U-Haul rental facility, limited historic data available
7	1901 Pavilion Blvd	0-0 36054	Exxon 4-0539	Low	One groundwater monitoring well was observed
8	10201 AKA 10301 Old Concord Rd	NA	Quality Sprinkler, INC	Low	No USTs observed on site or reported by on site historian. UST removal reported in contamination
9	8520 AKA 10220 Old Concord Rd	0-0 25236	Southern Concrete Materials, Co.	Low	Property had closure of 8,000-gallon UST. Soil Contamination was encountered. Former location of UST unknown
10	9630-M University City Boulevard	NA	Fancy Care Cleaners	Low	Active dry cleaner site
11	10039-H University City Boulevard	NA	Cleaners	Low	Inactive dry cleaner site
12	1531 Sams Lane	NA	Sams Express Car Wash	Low	Oil water separators present

Source: NCDOT, 2015

NCDOT GeoEnvironmental will re-evaluate potentially hazardous sites for the proposed NC 49 widening and Back Creek Church Road realignment to determine whether soil and groundwater assessments are necessary prior to right of way acquisition.

Indirect and Cumulative Effects

A screening matrix of potential indirect and cumulative effects was prepared for this project. Based on this assessment, it is not likely that this project would induce significant indirect and cumulative effects (ICEs). The relocation of Back Creek Church Road would not open substantial areas for development. Other factors limiting potential ICEs include the developed nature of the project's future land use study area (FLUSA) and existing local growth management policies.

Summary of Environmental Impacts

Table 12 summarizes the potential impacts associated with the two Build Alternatives.

Table 12. Summary of Potential Impacts

Resource	Back Creek Church Road Alternative 1 (Yellow Option) (Preferred Alternative)	Back Creek Church Road Alternative 2 (Purple Option)
Schools	0	0
Proposed Back Creek Park Impacts* (Acres)	1.7	4.4
Places of Worship	1 (Back Creek ARP Church)	1 (Back Creek ARP Church)
Major Power Transmission Crossings	1	1 (conflict)
100-year Floodplain and Floodway Crossings	1	1
Stream Impacts* (Linear Feet)	2,570**	2,390**
Stream Crossings (Number)	10	9
Wetland Impacts** (Acres)	0.8***	1.9***
Wetland Crossings (Number)	4	7
Stream Mitigation Sites	0	1
Estimated Residential Relocations	3	2
Estimated Business Relocations	16	16
Traffic Noise Receptors	160	NA-
Hazardous Materials Sites	12	12
Potential Low-Income Population Impacts	Yes	Yes
Potential Minority Population Impacts	Yes	Yes
Conservation Easements	0	1
Estimated Construction Costs[#]	$59,181,000	$52,590,000

[1]Park Impacts measured from right of way, rounded to the nearest 0.1 acre
[2]Stream Impacts measured using slope stake limits plus 40 feet., rounded to the nearest 10 feet
[3]Wetland Impacts measured using slope stake limits plus 40 feet., rounded to the nearest 0.1 acre
[4]Construction costs estimated based on current level of design
Source: NCDOT, Natural Resources Technical Report, 2016

Comments and Coordination

The project start of study letter was sent on August 4, 2014. NCDOT hosted a regulatory scoping meeting and Merger Screening on December 9, 2015. NCDOT coordinated with USACE on the need and purpose of the project and questions regarding potential segmentation for the proposed realignment of Back Creek Church Road. A technical memorandum on the issue was provided for clarification to the Merger Team on June 24, 2016. Subsequent outreach to USACE indicated the memorandum was acceptable.

NCDOT sought input from the following agencies, organizations, and public officials as part of the project development. Those with an asterisk (*) provided responses:

- US Fish and Wildlife Service*
- US Army Corps of Engineers
- US Environmental Protection Agency
- NC Department of Environmental Quality, Division of Water Resources
- NC Wildlife Resources Commission
- NC State Historic Preservation Office
- City of Charlotte Department of Transportation
- Mecklenburg County, Board of Commissioners
- Mecklenburg County, County Manager
- Mecklenburg County School System*
- Charlotte Regional Transportation Planning Organization
- City of Charlotte, City Council
- City of Charlotte/Mecklenburg County, Planning
- City of Charlotte/Mecklenburg County, Stormwater/Public Works
- The University of North Carolina at Charlotte
- University City Partners

5.3 Public Involvement Summary with Stakeholder Coordination

NCDOT and CDOT have conducted meetings with UNC Charlotte and UCP about the proposed project, given its proximity to the UNC Charlotte campus. Meetings were held on November 29, 2016, May 30, 2017, April 9, 2019, and July 2, 2019. In addition to these meetings, UNC Charlotte and UCP participated in a meeting with CDOT on the typical section for the proposed NC 49 improvements on April 11, 2018. One issue of concern to UNC Charlotte and UCP are bicycle and pedestrian accommodations through the project corridor.

On April 23, 2019, a public meeting was held to inform the public about the proposed project and obtain input. The meeting was held at the UNC Charlotte Cone Center and there were 98 attendees. Before the public meeting, there was a Local Officials Informational Meeting with six attendees. During the meeting, the attendees were encouraged to submit a comment form. The most frequent comments provided were concerns regarding the addition of pedestrian walkways and/or bridges in addition to concerns about walkability along and across NC 49. There were also comments regarding the dislike of the RCI design and the addition of a signal on Back Creek Church Road. Along with the comments regarding the project designs, participants were given the opportunity to choose between the two alternatives. There were seventeen (17) participants that preferred Alternative 1 (Yellow Option) and two (2) that preferred Alternative 2 (Purple Option). In addition, there was one (1) participant that did not like either alternative and four (4) who either stated no preference or left no comment regarding the two alternatives. In conjunction with the public meeting, a project website (https://publicinput.com/nc-49-widening-charlotte) was developed and included a survey seeking input on how users interact with the corridor.

A meeting was held on November 4, 2019 with representatives from local homeowner's associations (HOAs). A total of 17 stakeholders representing 9 HOAs (Villages of Back Creek, Back

Creek Church I, Back Creek Chase, University Commons, Old Stone Crossing, Back Creek I HOA, The Reserve at Back Creek, Newell Place, and College Downs) and University City Partners. Issues discussed included neighborhood safety after the improvements, concerns of the closing of the existing Back Creek Church Road intersection with NC 49, railroad noise and vibration, induced traffic with the realignment of Back Creek Church Road, and property value changes that may be caused by the project. The meeting summary is included in Appendix C.

Additional coordination meetings will also be held with UNC Charlotte and UCP. Appendix C includes project public involvement materials.

A USACE Public Notice for this project was posted on July 22, 2019. The Public Notice included a 30-day comment period, expiring on August 20, 2019. The notice can be viewed at the following URL: https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Public-Notices/. The USACE received one comment (enclosed in Appendix A).

5.4 Agency Coordination

This project followed NCDOT's NEPA/404 Merger Process. The Merger Process is an interagency protocol that is designed to integrate the regulatory requirements of Section 404 of the Clean Water Act into the NEPA/SEPA processes. Representatives of the USACE and NCDOT served as co-chairs of the Merger Team. The following agencies participated in the NEPA/404 Merger Team for this project (see Appendix D for Merger Forms):

- US Army Corps of Engineers (lead federal agency partner)
- US Fish and Wildlife Service
- US Environmental Protection Agency
- NC Department of Environmental Quality, Division of Water Resources
- NC Wildlife Resources Commission
- NC State Historic Preservation Office
- Charlotte Regional Transportation Planning Organization

The first Merger Meeting for the project was held on November 16, 2017, with the goal of obtaining agreement on Concurrence Points 1 and 2 (Purpose and Need and Study Area Defined; Design Options for Detailed Study). The Merger Team was able to reach agreement on Purpose and Need; however, additional alternatives were proposed, and concurrence was not reached on the project study area. The second Merger Meeting was held on July 19, 2018. At this meeting, concurrence was achieved for Concurrence Points 1 and 2.

The third Merger Meeting was held on June 13, 2019 with the goal of reaching agreement on Concurrence Point 2A (Major Crossing Structures and Alignment Review). During the meeting, there was a request for additional information on the bridging and culvert options of one crossing. The information was provided to the team on June 20, 2019, and the subsequent meeting was held on June 24, 2019. Formal concurrence signatures were obtained on July 10, 2019.

The fourth Merger Meeting was held on August 14, 2019, at which the Merger Team concurred on a minor extension of the project study area (CP1) as well as agreeing on Alternative 1 (Yellow Option) as the LEDPA for the project (CP3).

6. State and Federal Permits Required

As stated previously, the proposed project has been designated as a State EA/FONSI for the purposes of SEPA documentation. An Individual Section 404 Clean Water Act Permit will likely be required by the USACE. Section 404 jurisdictional areas (Waters of the US) within the project study area include perennial and intermittent streams. The USACE holds the final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required, then a Section 401 Water Quality Certification from the NC Division of Water Resources will be needed.

7. Basis for Finding of No Significant Impact

Based upon the evaluation contained in this assessment, and upon comments received from federal, state, and local agencies, it is the finding of the NCDOT that the Preferred Alternative, Alternative 1 (Yellow Option), for STIP Project U-5768 will not have significant adverse impacts upon the human or natural environment. The project, as proposed, is consistent with local, regional, and statewide planning efforts and would not disrupt the communities adjacent to it. Per this evaluation, a Finding of No Significant Impact is applicable to this project. Therefore, neither a state environmental impact study nor further environmental analysis is required.

8. References

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NCDOT) 2016. *Natural Resources Technical Report (2016 Update)*. October 2016.

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NCDOT. 2019A. *STIP Project U-5768 Traffic Analysis Technical Memorandum Addendum*. May 2019.

NCDOT, 2019B, *STIP Project U-5768 Historic Architecture Update*. July 2019.

NCDOT, 2019C, *STIP Project U-5768 Traffic Noise Report*. October 2019.

NCDOT, 2019D. *STIP Project U-5768 Air Quality Report*. October 2019.

NCDOT, 2019D. *STIP Project U-5768 Community Impact Assessment, October 2019.*

University City Partners. 2015. *A park in our future! County buys 33.4 acres near future highway and UNCC* Website cited September 5, 2019: https://universitycitypartners.org/a-park-in-our-future-county-buys-33-4-acres-near-future-highway-and-uncc/

Figures

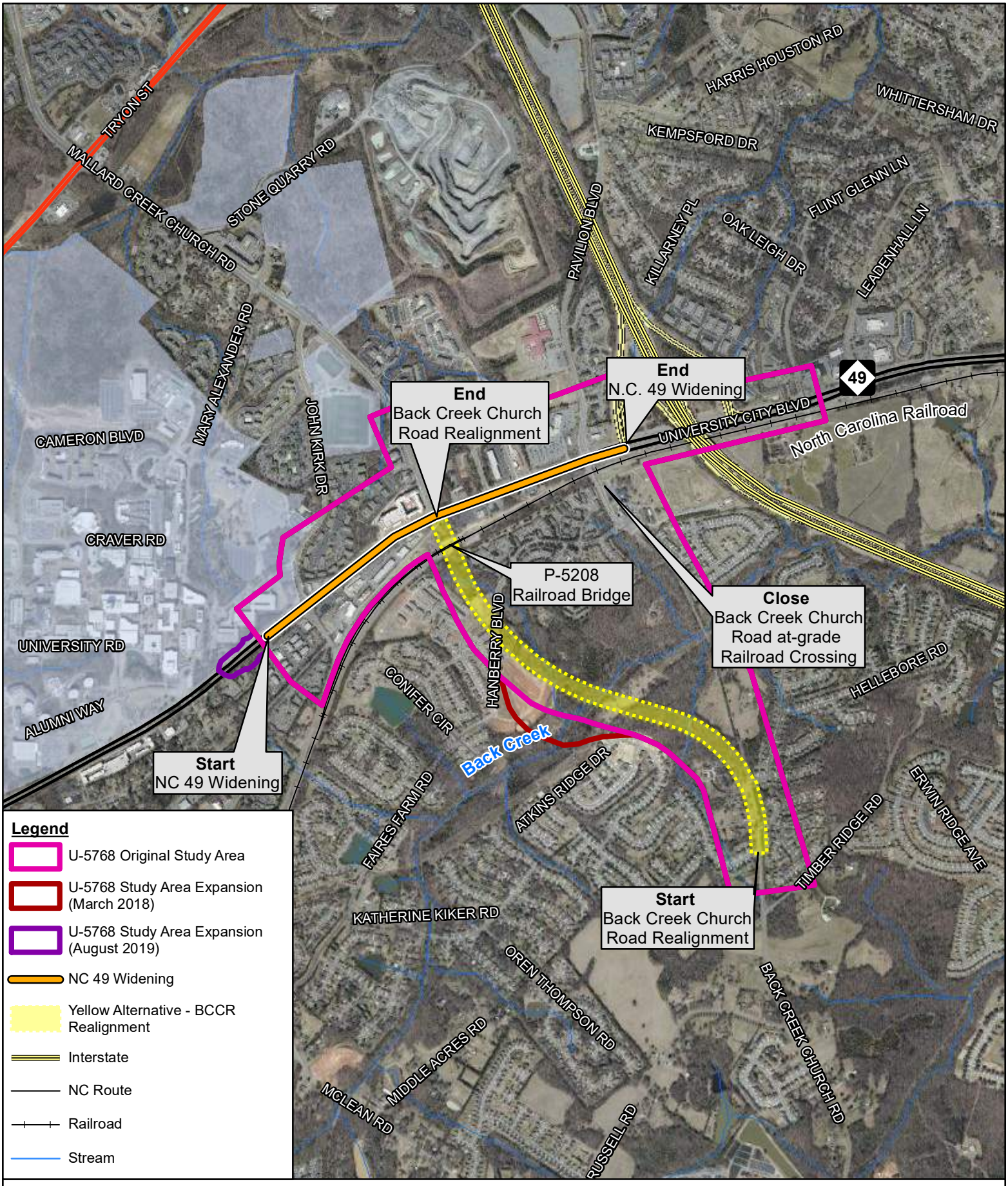


FIGURE 1
Vicinity Map
STIP U-5768
Charlotte, Mecklenburg County
Sources: NCDOT, NCOneMap, City of Charlotte, Mecklenburg Co.
HNTB Corporation. Oct. 2019

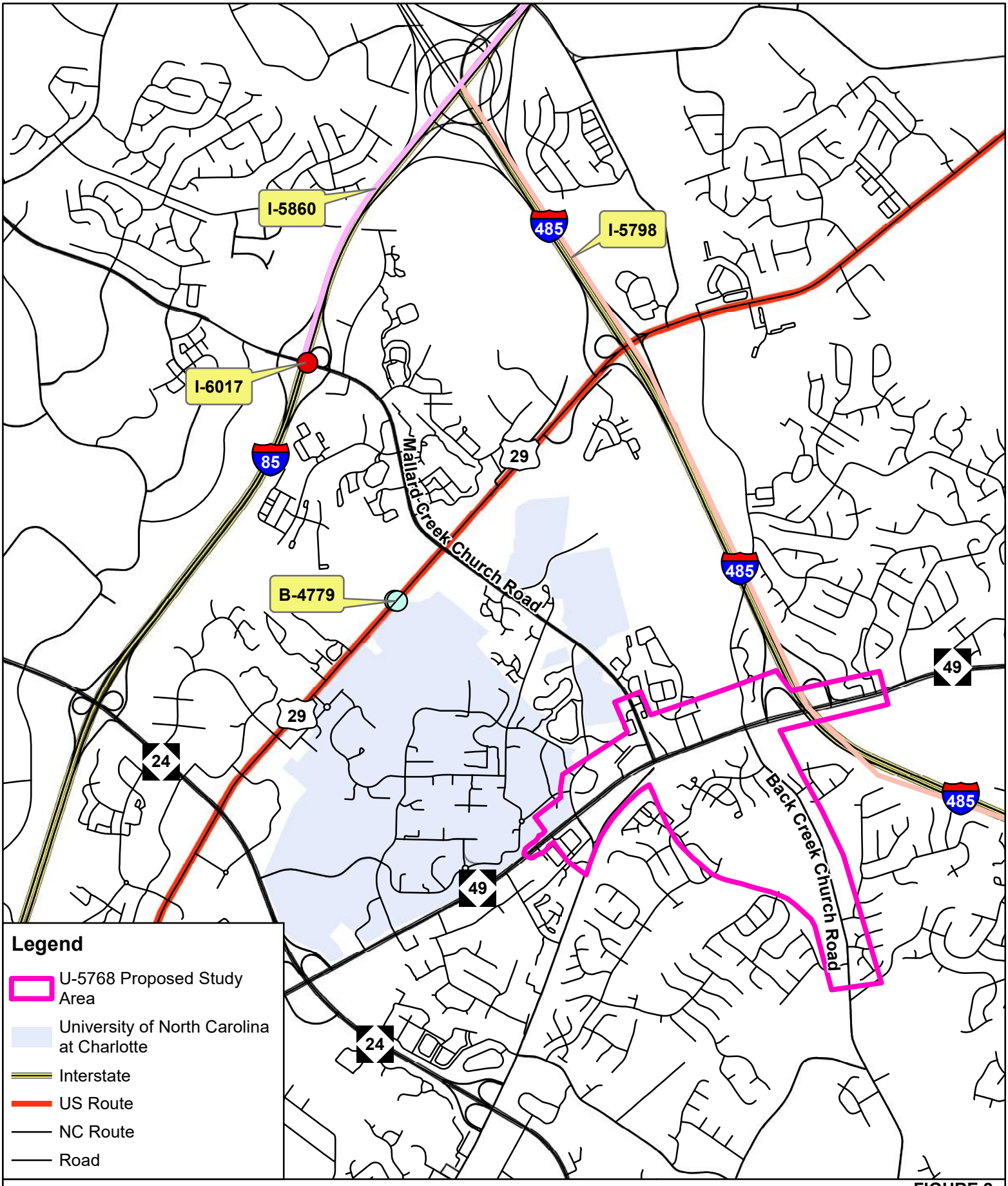
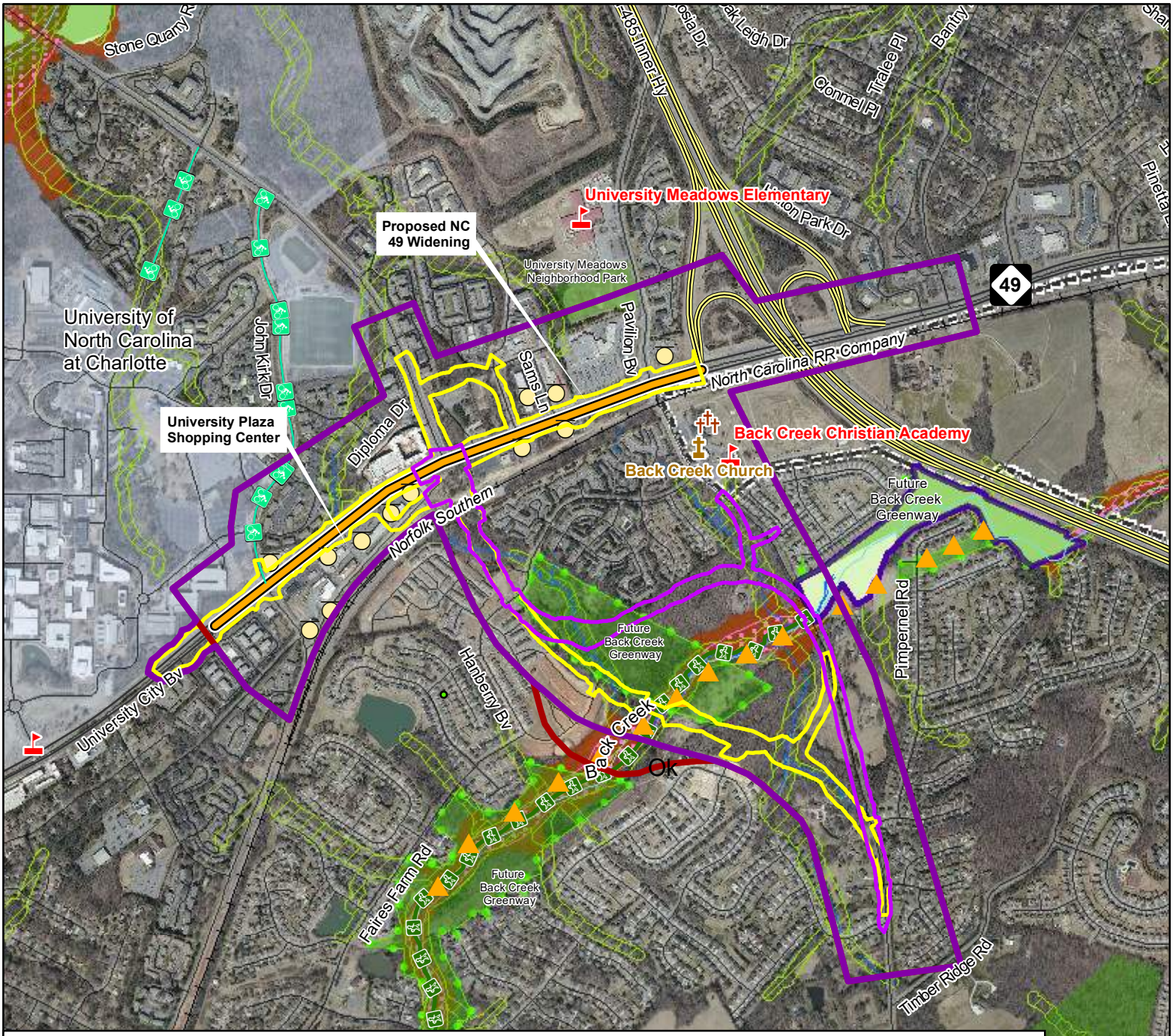


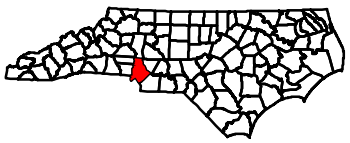
FIGURE 2
Nearby STIP Projects
STIP U-5768
Charlotte, Mecklenburg County

Sources: NCDOT, NCOneMap, City of Charlotte, Mecklenburg Co. HNTB Corporation. Oct. 2019



Legend

- U-5768 Study Area Expansion (March 2018)
- U-5768 Study Area Expansion (August 2019)
- Purple Alignment
- Yellow Alignment
- Geoenvironmental Site
- Transmission Tower
- School
- Place of Worship
- Cemetery
- N.C. 49 Widening
- Bicycle Route
- Future Back Creek Greenway
- Railroad
- Stream
- 303(d) Water
- Park
- NCDOT Mitigation Site
- Conservation Easement
- Back Creek Greenway
- Water Quality Buffer
- NWI Wetland
- Floodway (FEMA)
- 100-Yr Floodplain (FEMA)



N

0 1,000 2,000 Feet

FIGURE 3
Environmental Features Map
STIP U-5768
Charlotte, Mecklenburg County
Sources: NCDOT, NCOneMap, City of Charlotte, Mecklenburg Co.
HNTB Corporation. Oct. 2019

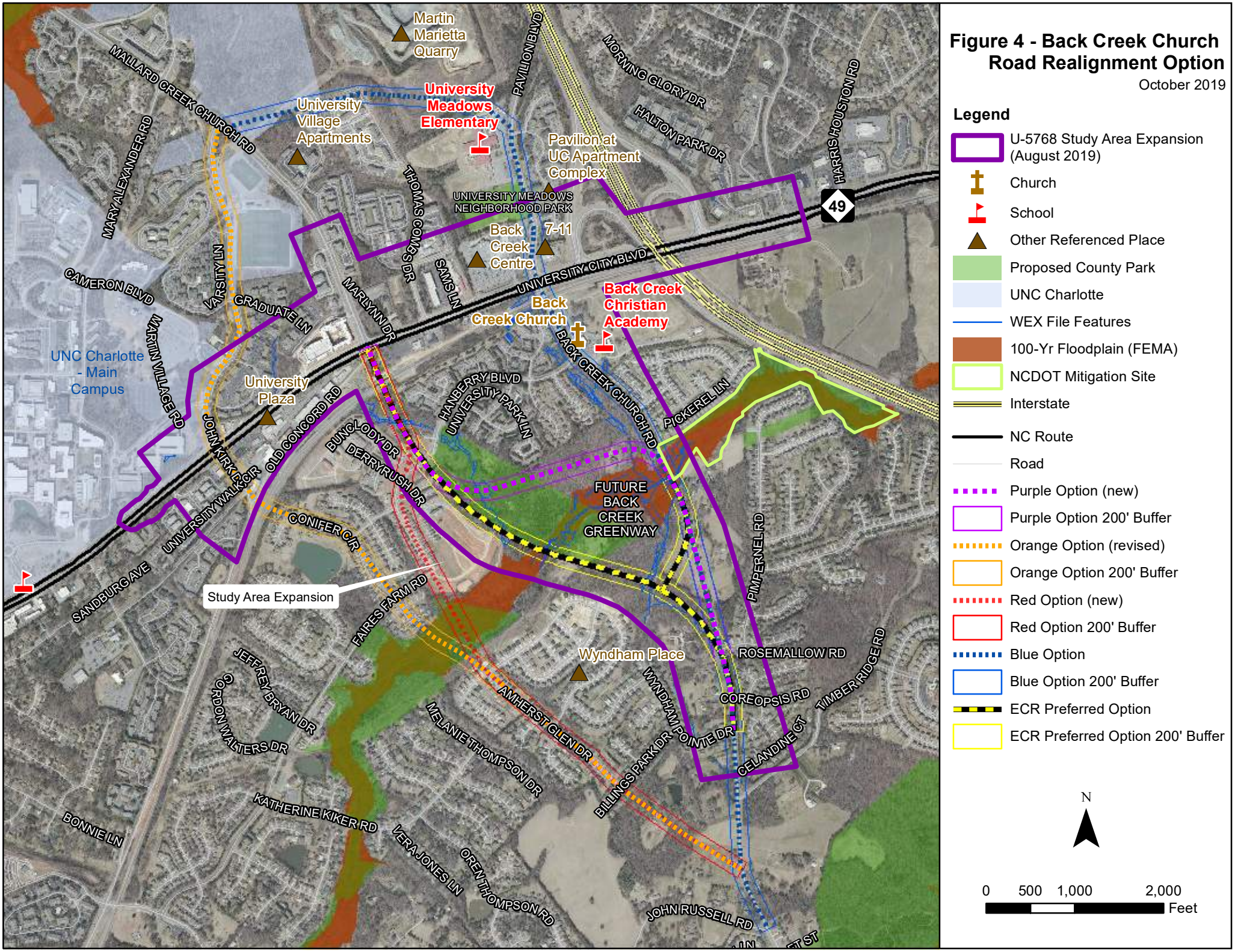


Figure 4 - Back Creek Church Road Realignment Option

October 2019

Legend

- U-5768 Study Area Expansion (August 2019)
- Church
- School
- Other Referenced Place
- Proposed County Park
- UNC Charlotte
- WEX File Features
- 100-Yr Floodplain (FEMA)
- NCDOT Mitigation Site
- Interstate
- NC Route
- Road
- Purple Option (new)
- Purple Option 200' Buffer
- Orange Option (revised)
- Orange Option 200' Buffer
- Red Option (new)
- Red Option 200' Buffer
- Blue Option
- Blue Option 200' Buffer
- ECR Preferred Option
- ECR Preferred Option 200' Buffer

N

0 500 1,000 2,000 Feet

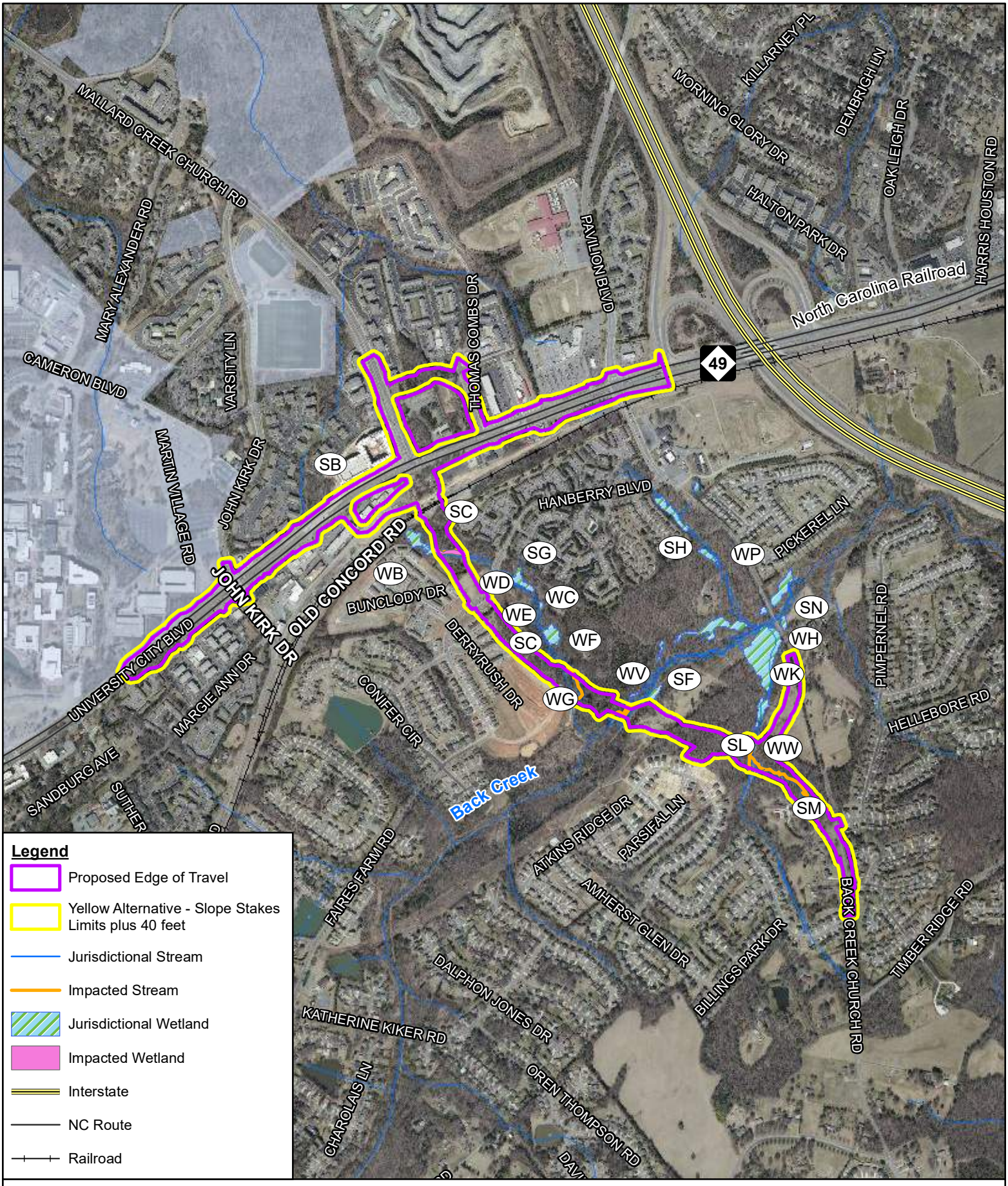


FIGURE 5
Jurisdictional Features Map
STIP U-5768
Charlotte, Mecklenburg County
Sources: NCDOT, NCOneMap, City of Charlotte, Mecklenburg Co.
HNTB Corporation. Oct. 2019

Appendix A: Agency Correspondence

From:	Feller, Lisa M
To:	Amschler, Crystal C SAW
Cc:	Van Der Wiele, Cynthia ; Buncick, Marella; Chambers, Marla J; Dagnino, Carla S; Turchy, Michael A; Hood, Donna; Roberts, Tracy; "mmagnasco@ci.charlotte.nc.us"; Robinson, Beverly G; Moore, Kevin E; Basham, Stuart L; Cole, Scott; Landis, Ashley (alandis@ci.charlotte.nc.us)
Subject:	[EXTERNAL] RE: U-5768, External Scoping/Merger Screening, Division 10, Mecklenburg County (UNCLASSIFIED)
Date:	Friday, August 05, 2016 9:10:43 AM
Attachments:	image002.png image003.png U-5768 Logical Termini Memo (rev 07-29-2016).pdf

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Sorry Everyone. I neglected to attach the memo…

Happy Friday!

From: Feller, Lisa M
Sent: Wednesday, August 03, 2016 3:49 PM
To: Amschler, Crystal C SAW
Cc: Van Der Wiele, Cynthia ; Buncick, Marella; Chambers, Marla J; Dagnino, Carla S; Turchy, Michael A; Hood, Donna; Roberts, Tracy; 'mmagnasco@ci.charlotte.nc.us'; Robinson, Beverly G; Moore, Kevin E; Basham, Stuart L; Cole, Scott; Landis, Ashley (alandis@ci.charlotte.nc.us)
Subject: RE: U-5768, External Scoping/Merger Screening, Division 10, Mecklenburg County (UNCLASSIFIED)

Good afternoon Crystal,

As a follow up to our June 30th phone call, we revised the logical termini memorandum (attached) to explain the physical and operational interconnectedness of the three components of the project (see new text under Section 4). The other issue that we discussed was the grade separation alternatives at the railroad and NC 49/Back Creek Church Road that were considered in the STIP P-5208 Environmental Assessment (EA). This information was previously included on page 4 of the local termini memorandum and mirrors very closely the text in the EA. If you have any questions or need additional information, please let me know.

Best regards,

Lisa M. Feller, PE

Project Planning Engineer

PDEA / Project Development Section – Western Region

North Carolina Department of Transportation

MEMORANDUM

To
U-5768 Project File

From
Tracy Roberts, AICP

Cc
Lisa Feller, PE
NCDOT – Project Development Engineer

Subject
STIP Project U-5768, Logical Termini

Date
July 29, 2016

The purpose of this memorandum is to document that the proposed project has logical termini, has independent utility and would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Attachments to this memorandum are:

- Figure 1 – Environmental Features Map
- Figure 2 – Alternate Travel Routes
- Figure 3 – Eastern Circumferential Alignment Study

1. Introduction

The North Carolina Department of Transportation, in cooperation with the City of Charlotte, proposes to widen NC 49 (University City Boulevard) from four lanes to a multi-lane, median-divided facility from John Kirk Drive (SR 2833) to I-485, approximately 1.0 mile, and realign Back Creek Church Road (SR 2827) on new location to the intersection of NC 49 and E. Mallard Creek Church Road (SR 5394), approximately 1.3 miles. In addition, the project would close the railroad crossing at Back Creek Church Road and NC 49, terminating Back Creek Church Road in advance of the railroad. The design year is 2040. **Figure 1** shows the proposed project and nearby environmental features.

The project, located in Mecklenburg County, is included in the 2016–2025 State Transportation Improvement Program (STIP) as Project U-5768. According to the STIP, right of way and utilities are funded beginning in fiscal year (FY) 2019 and construction beginning in FY 2021.

A state Environmental Assessment will be prepared. The project will be funded with state and local money. No federal funding is anticipated. Due to potential impacts to Waters of the United States, a Section 404 Permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the North Carolina Department of Environmental Quality – Division of Water Resources are anticipated. The project will follow the Section 404/NEPA Merger Process.

2. Preliminary Purpose and Need

The preliminary purpose of the U-5768 project is threefold: 1) to reduce traffic congestion, improve traffic flow and enhance traffic operations on NC 49 between John Kirk Drive and I-485; 2) to improve safety and enhance train and vehicle operations at the railroad crossing with Back Creek Church Road and NC 49; and 3) to maintain network connectivity between the Rocky River area of east Charlotte and NC 49 once the railroad crossing is closed.

The preliminary needs for the project are:

- NC 49: NC 49 is currently operating at or close to congested levels. With anticipated traffic growth through 2040, NC 49 will be over capacity and congestion will worsen to a poor level of service with excessive queuing if no improvements are made.
- Railroad Crossing: Since 2000, there have been six highway vehicle/train crashes; most involved vehicles running off the paved surface and becoming stuck on the tracks. Current typical train traffic as reported by Norfolk Southern is 38 trains per day. Train volumes are expected to double in the future. Track speeds through the project limits have been improved to 79 miles per hour for passenger trains and 60 miles per hour for freight trains. Vehicle traffic at the railroad crossing is currently 17,300 vehicles per day and this volume is projected to increase to 20,600 vehicles per day by 2040. Thus, the potential for vehicle/train collisions will grow. Closing the railroad crossing would eliminate the possibility for a collision between trains and vehicles. Removing the possibility for a collision would also improve rail operations by eliminating delays needed to investigate an incident at the crossing, clear the crash site, or replace the train crew. Also, with the crossing removed, trains would no longer need to blow their horns which would be a benefit to the public.
- Network Connectivity: With the closing of the railroad crossing, the existing network connectivity between the Rocky River area and NC 49 would be lost. The lack of other nearby travel routes to cross the railroad tracks to access NC 49 would result in a substantial amount of out-of-the-way travel. Travel distances would increase by 3.5 miles to 7.5 miles depending on the route chosen, compared to maintaining the existing railroad crossing (0.2 mile). **Figure 2** shows the alternate travel routes and their travel distances. Additionally, alternate travel routes 1 and 2 would send thoroughfare traffic on residential streets that have speed limits as low as 25 miles per hour and traffic calming devices. These roads were not designed to function as thoroughfares.

3. Principles for Selecting Termini

In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, Federal Highway Administration (FHWA) guidelines[1] (23 CFR 771.111[f]) require the proposed action evaluated in each environmental impact statement (EIS) or finding of no significant impact (FONSI) shall:

a) Connect logical termini and be of sufficient length to address environmental matters on a broad scope;

[1] Although the environmental document will be a state Environmental Assessment and will not utilize federal funding, NCDOT believes FHWA's principles for logical termini are applicable regardless of the document type or funding source.

b) Have independent utility or independent significance, i.e. be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and
c) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The following sections address these three general principles.

a) Connect Logical Termini

Logical termini are defined as 1) rational end points for a transportation improvement and 2) rational end points for a review of the environmental impacts. The most common termini are points of major traffic generation, especially intersecting roadways. This is because traffic generators typically determine the size and type of facility being proposed. Natural features such as creeks and municipal boundaries are not logical termini for most transportation projects.

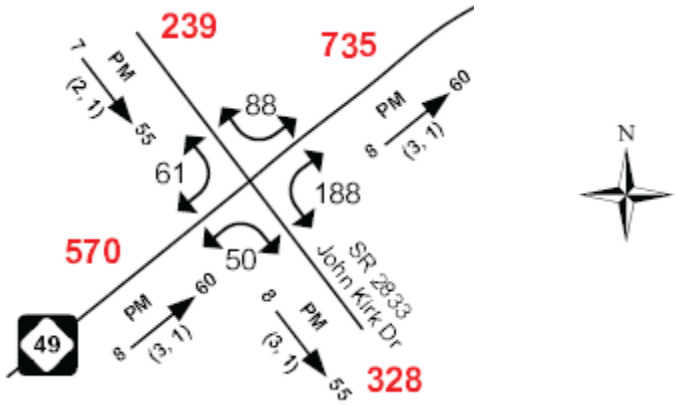
Rational End Points for a Transportation Improvement

NC 49

The eastern terminus of the NC 49 widening is I-485, an Interstate highway loop encircling the City of Charlotte. NC 49 connects with I-485 via an interchange. NC 49 through the interchange is currently six lanes whereas the section of NC 49 west of the interchange is four lanes. Therefore, widening the existing four-lane NC 49 to the west of the interchange would provide a continuation of the existing six-lane facility.

The western terminus of the NC 49 widening is John Kirk Drive. The reasons are:

1. According to the U-5768 project traffic forecast, traffic volumes decrease approximately 23 percent (16,500 vehicles per day) west of this intersection. This is because traffic patterns make a notable shift in this location, with much of the traffic moving between NC 49 and John Kirk Drive south of NC 49 rather than continuing further west along NC 49. The exhibit below shows traffic volumes and directional splits for the 2040 design year in the Build condition.



2. The University of North Carolina at Charlotte (UNCC), multi-family housing and commercial development are located near this intersection and serve as major traffic generators.

Back Creek Church Road Realignment

Back Creek Church Road would be terminated at the railroad crossing near NC 49. This road would then be realigned to connect with NC 49 at E. Mallard Creek Church Road, resulting in a four-legged

intersection (it is a three-legged intersection today). The purpose of the realignment is to maintain network connectivity between the Rocky River area of east Charlotte and NC 49. This connectivity would be lost when the railroad crossing is closed, resulting in long travel routes as a result of poor network connectivity.

Previous Consideration of Alternatives

Grade Separation Alternatives: Under the STIP P-5208 Environmental Assessment[2] (October 2011), two grade separation options at the existing railroad crossing were considered. One option included building a railroad bridge and the other option was a road bridge. Both were ultimately eliminated from further study due to topographic features, access requirements and numerous residential and business impacts.

Therefore, the EA included construction of a railroad bridge to allow a realigned Back Creek Church Road (referred to as the "Eastern Circumferential" in the EA) to pass underneath the railroad and connect with NC 49 at E. Mallard Creek Church Road. The Preferred Alternative included the construction of "a railroad bridge to accommodate the future Eastern Circumferential, which is to be on new alignment connecting E. Mallard Creek Church Road (SR 2833) north of NC 49 to Back Creek Church Road (SR 2827) south of NC 49, allowing the closure of the Back Creek Church Road (SR 2827) at-grade crossing." The federal Finding of No Significant Impact was approved by the Federal Railroad Administration – with the Federal Highway Administration acting as a cooperating agency – in June 2012. A USACE Nationwide 404 Permit was issued in March 2013. Therefore, logical termini (and independent utility) for the Back Creek Church Road realignment were considered and determined appropriate under the P-5208 project. The railroad bridge, as well as the remainder of the double track project, is under construction.

Alignment Alternatives: The proposed location for the realignment of Back Creek Church Road was part of the Eastern Circumferential Alignment Study prepared by the City of Charlotte in 1989. The proposed Eastern Circumferential Road is an approximately 13 mile long road that is needed to provide adequate circumferential thoroughfare spacing in eastern Mecklenburg County. Four alternative alignments were evaluated. After considering factors such as alignment length, floodway crossings, residential/business/church/school impacts and impacts to parks and natural areas, a recommended alternative was identified. This alternative was then placed on the City's thoroughfare plan. The proposed realignment of Back Creek Church Road under the U-5768 project is consistent with this recommendation. **Figure 3** shows the four alternative alignments through the U-5768 study area. As this figure shows, the other three alignments now have development in their paths.

Realigning Back Creek Church Road to intersect with NC 49 at E. Mallard Creek Church Road represents a logical terminus as it would be consistent with the P-5208 EA and FONSI and previously issued USACE permit, consistent with the 1989 alternatives study and would be a safer location due to the elimination of conflicts between train, vehicular, bicycle and pedestrian traffic.

Rational End Points for Environmental Review

Rational end points as they relate to environmental issues are points which would retain the ability to address environmental matters on a broad scope. This is to ensure that transportation improvements are

[2] The P-5208 project is the construction of 12 miles of second mainline track along the Norfolk Southern Mainline between Concord and Charlotte; specifically, from control point (CP) Haydock to CP Junker. The project also includes the closure of 11 at-grade railroad crossings and the construction of four grade separations. The purpose of the project is to improve passenger train schedule reliability, provide additional capacity to support the introduction of up to 12 daily (6 round trips) additional passenger trains to the North Carolina Railroad Piedmont Corridor, and enhance the safety of the railroad within the study area. The project is currently under construction.

not developed in such a manner as to force an environmental impact on a resource that is just outside the study area.

NC 49

NC 49 through the study area is largely urbanized with retail, commercial, residential and UNCC-related land uses. Due to the developed nature of the NC 49 corridor, the proposed one-mile widening would not force environmental impacts beyond either end of the project termini (i.e. John Kirk Drive and I-485). Regardless of the design options utilized on NC 49, consideration of alternatives for the future widening of NC 49 west of John Kirk Drive to US 29 (identified as a 2040 Horizon Year project) would not be constrained by the U-5768 project should impacts to environmental resources along that two-mile length of the corridor need to be avoided or minimized.

Back Creek Church Road Realignment

The one-mile realignment of Back Creek Church Road would not force environmental impacts for any future projects, including the widening of NC 49 and construction of additional segments of the Eastern Circumferential.

b) Independent Utility

The NC 49 widening from John Kirk Drive to I-485, the railroad crossing closing and the Back Creek Church Road realignment would have independent utility and would be usable without additional improvements and would be a reasonable expenditure of funds even if no additional transportation improvements in the area are made.

NC 49 experiences high levels of congestion today, with the highest levels of congestion occurring between John Kirk Drive and I-485, and that congestion will worsen through the 2040 design year if no improvements are made. Providing improved traffic flow and reduced congestion between John Kirk Drive and I-485 would be a worthwhile investment even if no other transportation improvements were made.

Closing the railroad crossing at Back Creek Church Road and NC 49 would eliminate train conflicts with vehicles and pedestrians, and would result in improved traffic operations at the intersection due to the removal of multiple traffic movements with the closure. However, the resulting lost connectivity with NC 49 would need to be replaced as part of the closure. Realigning Back Creek Church Road would need to occur *in concert with* the closure to ensure this essential connection is maintained. The realignment would also force the lowering of the NC 49/E. Mallard Creek Church Road intersection by approximately 12 feet to allow the new road to achieve the needed profile to pass underneath the railroad bridge that is under construction. This would require improvements of approximately 1,500 feet along NC 49, as well as capacity enhancements that would be needed along NC 49 to accommodate the additional traffic that would be added to the intersection.

For these reasons, the three components of U-5768 are interrelated and should be implemented as a single project to achieve independent utility.

c) Consideration for Other Reasonably Foreseeable Transportation Improvements

Reasonably foreseeable transportation improvements within the U-5768 study area include the continuation of NC 49 widening from west of John Kirk Drive to North Tryon Street (US 29), a distance of approximately 2.2 miles, and the widening of Old Concord Road from WT Harris Boulevard (NC 24) to NC 49, a distance of approximately 1.3 miles. Both projects are included in the 2040 Horizon Year of the Charlotte Regional Transportation Planning Organization's 2040 Metropolitan Transportation Plan.

Additionally, UNCC is proposing improvements along John Kirk Drive at NC 49 and at Cameron Boulevard and John Kirk Drive as part of the university's planned East Village Infrastructure projects. The U-5768 project would not restrict consideration of alternatives for any of these planned projects.

Reasonably foreseeable transportation improvements will be discussed in the U-5768 Environmental Assessment under the cumulative effects analysis.

4. Interrelatedness of Project Components

It is appropriate to plan, design and construct the three components of the U-5768 project as a single project. Each component is related to the other physically and also from a traffic operations perspective.

By planning and constructing the railroad crossing closure, Back Creek Church Road realignment and NC 49 widening as a single project, the project design can account for the necessary through / turn lanes that will be needed to ensure adequate traffic flow through the local roadway network. The NC 49 / Mallard Creek Church Road intersection can also be lowered to accommodate a realigned Back Creek Church Road.

By including the three project components in a single environmental document and constructing them together, the costly reconstruction and community disruption that would occur should they be constructed separately can be avoided.

5. Conclusion

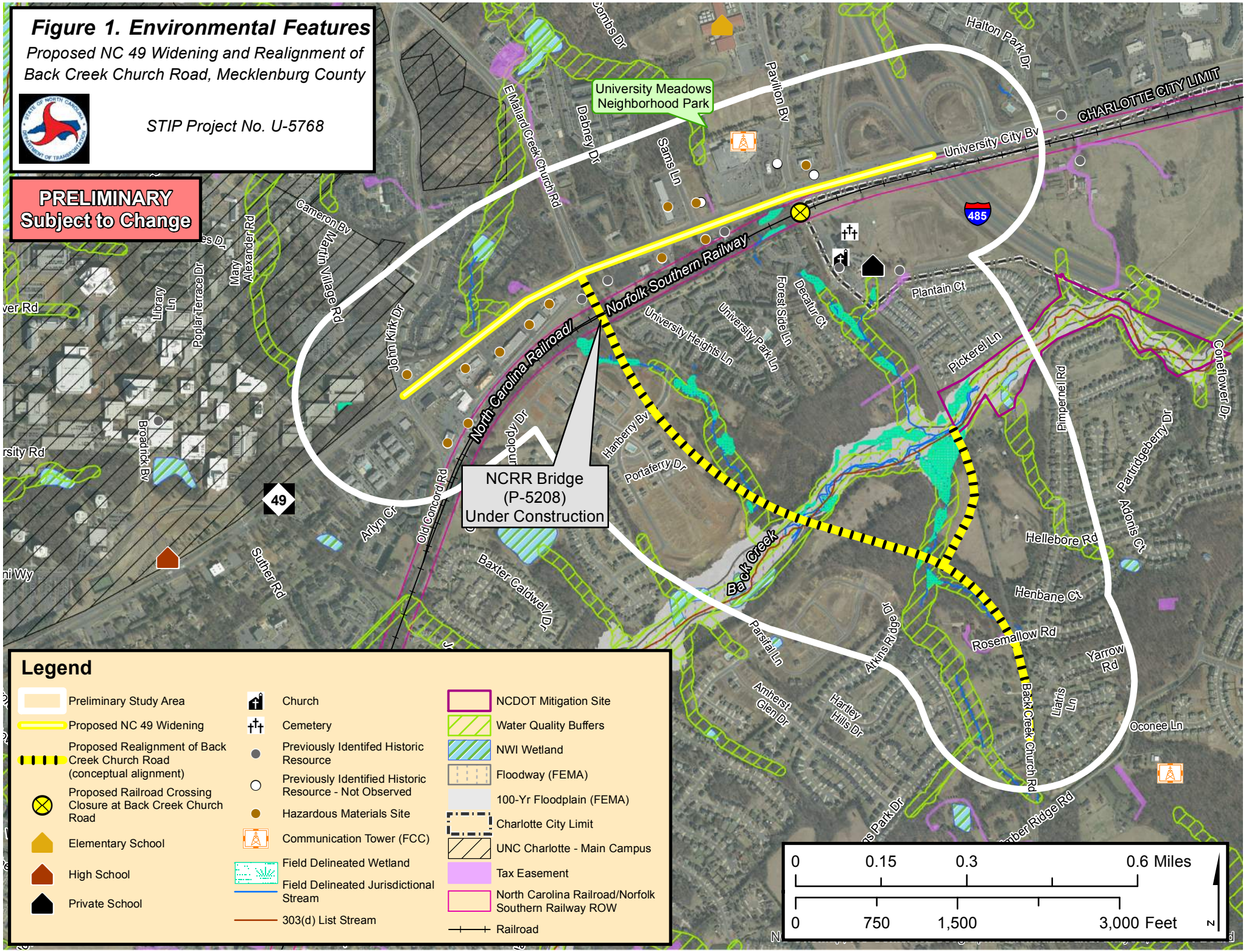
Based on the analysis and consideration of factors presented herein, the termini for the widening of NC 49 and the termini of the realignment of Back Creek Church Road are logical and, when combined with the closure of the railroad crossing at Back Creek Church Road, demonstrate independent utility and would be a reasonable expenditure of funds even if no additional transportation improvements were made.

Figure 1. Environmental Features

Proposed NC 49 Widening and Realignment of Back Creek Church Road, Mecklenburg County

STIP Project No. U-5768

PRELIMINARY
Subject to Change



Legend

- Preliminary Study Area
- Proposed NC 49 Widening
- Proposed Realignment of Back Creek Church Road (conceptual alignment)
- Proposed Railroad Crossing Closure at Back Creek Church Road
- Elementary School
- High School
- Private School
- Church
- Cemetery
- Previously Identifed Historic Resource
- Previously Identified Historic Resource - Not Observed
- Hazardous Materials Site
- Communication Tower (FCC)
- Field Delineated Wetland
- Field Delineated Jurisdictional Stream
- 303(d) List Stream
- NCDOT Mitigation Site
- Water Quality Buffers
- NWI Wetland
- Floodway (FEMA)
- 100-Yr Floodplain (FEMA)
- Charlotte City Limit
- UNC Charlotte - Main Campus
- Tax Easement
- North Carolina Railroad/Norfolk Southern Railway ROW
- Railroad

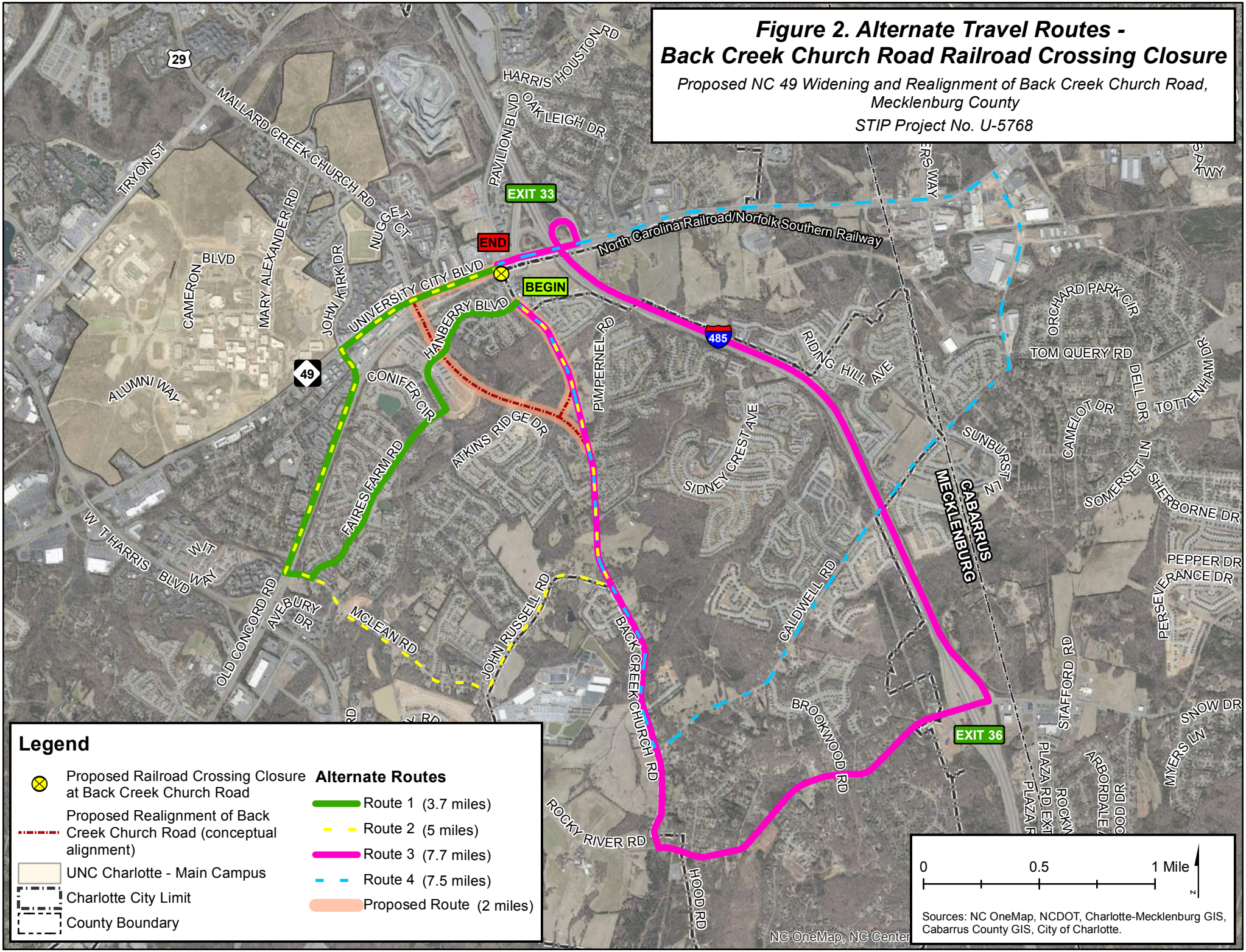


Figure 2. Alternate Travel Routes -
Back Creek Church Road Railroad Crossing Closure
Proposed NC 49 Widening and Realignment of Back Creek Church Road, Mecklenburg County
STIP Project No. U-5768
Legend
Proposed Railroad Crossing Closure at Back Creek Church Road
Proposed Realignment of Back Creek Church Road (conceptual alignment)
UNC Charlotte - Main Campus
Charlotte City Limit
County Boundary
Alternate Routes
Route 1 (3.7 miles)
Route 2 (5 miles)
Route 3 (7.7 miles)
Route 4 (7.5 miles)
Proposed Route (2 miles)
BEGIN
END
EXIT 33
EXIT 36
North Carolina Railroad/Norfolk Southern Railway
UNIVERSITY CITY BLVD
HANBERRY BLVD
MARY ALEXANDER RD
JOHN KIRK DR
CONIFER CIR
FAIRES FARM RD
ATKINS RIDGE DR
PIMPERNEL RD
SIDNEY CREST AVE
RIDING HILL AVE
SUNBURST LN
CALDWELL RD
BACK CREEK CHURCH RD
JOHN RUSSELL RD
MCLEAN RD
BROOKWOOD RD
ROCKY RIVER RD
HOOD RD
STAFFORD RD
TOM QUERY RD
CAMELOT DR
DELL DR
TOTTENHAM DR
SOMERSET LN
SHERBORNE DR
PEPPER DR
PERSEVERANCE DR
SNOW DR
MYERS LN
ORCHARD PARK CIR
ALUMNI WAY
W T HARRIS BLVD
OLD CONCORD RD
AVEBURY DR
CAMERON BLVD
TRYON ST
MALLARD CREEK CHURCH RD
HARRIS HOUSTON RD
OAK LEIGH DR
PAVILION BLVD
NUGGET CT
CABARRUS
MECKLENBURG
485
49
29
0
0.5
1 Mile
Sources: NC OneMap, NCDOT, Charlotte-Mecklenburg GIS, Cabarrus County GIS, City of Charlotte.
NC OneMap, NC Center

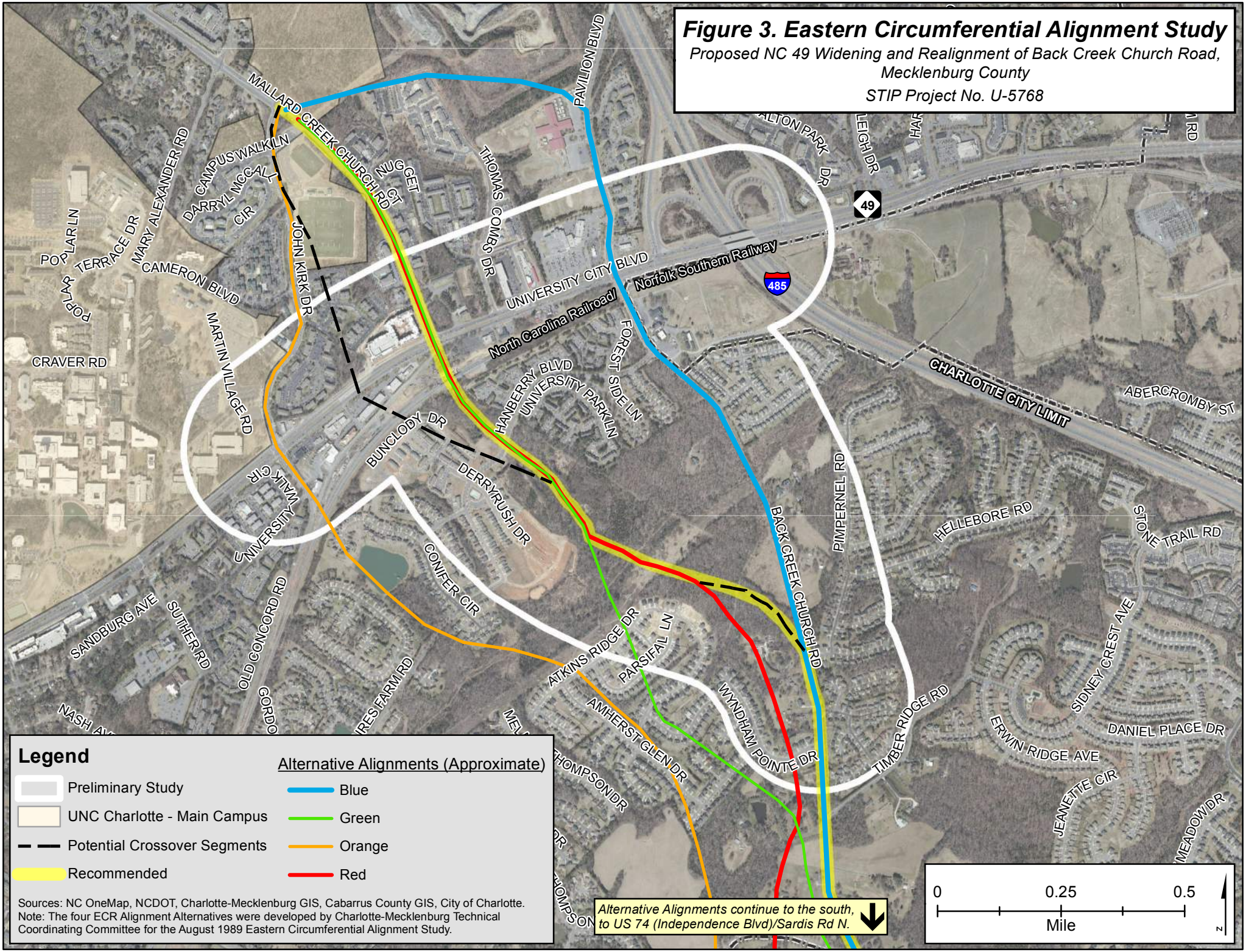


Figure 3. Eastern Circumferential Alignment Study
Proposed NC 49 Widening and Realignment of Back Creek Church Road, Mecklenburg County
STIP Project No. U-5768
MALLARD CREEK CHURCH RD
PAVILION BLVD
CAMPUS WALK LN
DARRYL MCCALL CIR
NUG GET CT
THOMAS COMBS DR
MARY ALEXANDER RD
POPLAR LN
TERRACE DR
CAMERON BLVD
JOHN KIRK DR
UNIVERSITY CITY BLVD
Norfolk Southern Railway
North Carolina Railroad
485
49
CRAVER RD
MARTIN VILLAGE RD
HANBERRY BLVD
UNIVERSITY PARK LN
FOREST SIDE LN
CHARLOTTE CITY LIMIT
ABERCROMBY ST
BUNCLODY DR
DERRYRUSH DR
UNIVERSITY WALK CIR
BACK CREEK CHURCH RD
PIMPERNEL RD
HELLEBORE RD
STONE TRAIL RD
CONIFER CIR
SANDBURG AVE
SUTHER RD
OLD CONCORD RD
ATKINS RIDGE DR
PARSIFAL LN
WYNDHAM POINTE DR
TIMBER RIDGE RD
SIDNEY CREST AVE
ERWIN RIDGE AVE
DANIEL PLACE DR
AMHERST GLEN DR
THOMPSON DR
JEANETTE CIR
MEADOW DR
Legend
Preliminary Study
UNC Charlotte - Main Campus
Potential Crossover Segments
Recommended
Alternative Alignments (Approximate)
Blue
Green
Orange
Red
Sources: NC OneMap, NCDOT, Charlotte-Mecklenburg GIS, Cabarrus County GIS, City of Charlotte.
Note: The four ECR Alignment Alternatives were developed by Charlotte-Mecklenburg Technical Coordinating Committee for the August 1989 Eastern Circumferential Alignment Study.
Alternative Alignments continue to the south, to US 74 (Independence Blvd)/Sardis Rd N.
0
0.25
0.5
Mile
N

US Army Corps
Of Engineers
Wilmington District

PUBLIC NOTICE

Issue Date: July 22, 2019
Comment Deadline: August 20, 2019
Corps Action ID Number: SAW-2015-02579

The Wilmington District, US Army Corps of Engineers (Corps) received information from the North Carolina Department of Transportation (NCDOT) regarding a potential future requirement for Department of the Army (DA) authorization to discharge dredged or fill material into waters of the United States, associated with the proposed widening of NC 49 (University City Boulevard) from John Kirk Drive to I-485. The project will also realign SR 2827 (Back Creek Church Road (BCCR)) to intersect with NC 49 at SR 2833 (Mallard Creek Church Road). The current at-grade intersection of BCCR and North Carolina Railroad (NCRR)/Norfolk Southern Railroad (NS) just south of NC 49 will be closed in conjunction with these improvements. The project is included in the draft 2020-2029 NCDOT State Transportation Improvement Program (STIP) as project number U-5768. Two (2) build alternatives and the No Build alternative are being considered at this time. The project is located in Mecklenburg County, North Carolina.

Proposed impacts to waters of the U.S. for the two (2) build alternatives range from: Alternative 1 (Yellow): 0.8 acres of wetlands and 2,740 linear feet of stream channel; and Alternative 2 (Purple): 1.9 acres of wetlands and 2,340 linear feet of stream channel. Descriptions of these alternatives are found within the Project Description section. These impact estimates were calculated based on functional roadway design slope stake limits plus 40 feet. Figures 2 and 3 show anticipated impacts to streams and wetlands.

Specific alignment alternatives and location information are described below on the attached plans, Figures 1-3. This Public Notice and all attached plans are also available on the Wilmington District Web Site at:
https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Public-Notices/

Applicant:
North Carolina Department of Transportation (NCDOT)
Project Management Unit
Attn: Wilson Stroud, Project Manager
1582 Mail Service Center
Raleigh, North Carolina 27699-1582
Phone: 919-707-6045; Email: wstroud@ncdot.gov

AGENT (if applicable):
Ken Gilland, HNTB Corporation
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
Phone: 919-424-0486; Email: kgilland@HNTB.com

Authority

The Corps evaluates this application and decides whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of the following Statutory Authorities:

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344)

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

To more fully integrate Section 404 permit requirements with the National Environmental Policy Act of 1969, and to determine the project is not contrary to the public interest and complies with the 404(b)(1) Guidelines, the Corps is soliciting public comment on the merits of this proposal and on the alternatives being considered.

At the close of this comment period, the District Commander will evaluate and consider the comments received, as well as the expected adverse and beneficial effects of the proposed road construction, to select the least environmentally damaging practicable alternative (LEDPA). The District Commander is not authorizing construction of the proposed project at this time. A final DA permit may be issued only after our review process is complete, impacts to the aquatic environment have been minimized to the maximum extent practicable, and a compensatory mitigation plan for unavoidable impacts has been approved.

Location

Location Description: The proposed project is located in northeastern Mecklenburg County, west of the intersection of I-485 and NC 49, University City Boulevard, within the city limits of Charlotte. The study area boundary for this project encompasses the proposed transportation improvements (Figure 1).

Nearest Town: Charlotte
River Basin: Yadkin-Pee Dee
Nearest Waterway: Back Creek
Latitude and Longitude: 35.3089 N, -80.7187 W

Existing Site Conditions

Mecklenburg County is located within the Piedmont region of central North Carolina. NC 49 in this area is characterized by educational, commercial, and high-density residential land uses. Along BCCR, there are high density development, some forested areas, and low-density residential uses throughout the corridor. Development is increasing throughout the BCCR corridor.

Existing NC 49 varies from two to four lanes with a raised median along some portions of the project corridor. There is currently no control-of-access along the facilities in the study area, which limits the level of mobility and travel speeds through the corridor due to numerous driveways for residences and businesses on both sides of the road.

Applicant's Stated Purpose

The purpose of the proposed project is to reduce traffic congestion, improve traffic flow, and enhance traffic operations on NC 49. Other purposes are to improve safety and enhance train and vehicle operations. Secondary purposes include:

- Achieve an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040).
- Maintain network connectivity from within the existing road network.
- Safely accommodate multi-modal uses of the corridor.

Project Description

NCDOT, in coordination with the Charlotte Department of Transportation (CDOT), proposes widening NC 49 (University City Boulevard) from John Kirk Drive to I-485. The project will also realign BCCR to intersect with NC 49 at SR 2833 (Mallard Creek Church Road). The current at-grade intersection of BCCR and NCRR/ NS just south of NC 49 will be closed in conjunction with these improvements. These improvements are included in the 2018-2027 North Carolina State Transportation Improvement Program as Project No. U-5768.

Detailed Study Alternatives (DSA)

On July 19, 2018, the Merger Team reached concurrence to carry the following alternatives forward for detailed study:

- Alternative 1 (Yellow Alternative): Best-fit widening on NC 49 and relocation of BCCR from south of Back Creek to the intersection of NC 49 and Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208. The project also includes traffic flow and connectivity improvements to Old Concord Road (SR 2939) and Thomas Combs Drive (two quadrant roadways are proposed) and closure of the existing at-grade railroad crossing on existing BCCR.

- Alternative 2 (Purple Alternative): Best-fit widening on NC 49 and relocation of BCCR from just north of Back Creek to the intersection of NC 49 and Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208. The project also includes traffic flow and connectivity improvements to Old Concord Road (SR 2939) and Thomas Combs Drive (two quadrant roadways are proposed) and closure of the existing at-grade railroad crossing on existing BCCR.

- In addition to the Build Alternatives (i.e., Detailed Study Alternatives, or DSAs), a No-Build Alternative is also being considered as a baseline against which the benefits, costs, and impacts of the Build Alternatives can be compared. NCDOT has preliminarily determined that the No-Build Alternative would not meet the project's purpose and need.

Avoidance and Minimization

Through development of the functional designs of the Detailed Study Alternatives (DSA's), NCDOT has attempted to avoid or minimize impacts to streams and wetlands to the greatest practicable extent. This included developing alignments and intersection configurations for the DSAs that avoided these resources as much as possible, while also minimizing impacts to other resources. NCDOT will continue to seek ways to avoid and minimize impacts in further design efforts for the selected alternative. Jurisdictional determinations will be made once a LEDPA has been agreed on.

Compensatory Mitigation

The purpose of compensatory mitigation is to offset unavoidable functional losses to the aquatic environment resulting from project impacts to waters of the United States. NCDOT will investigate potential on-site compensatory mitigation opportunities for the selected alternative. If on-site mitigation is not feasible, or a sufficient amount of mitigation is not available on-site, mitigation will be provided by the NC Department of Environmental Quality - Division of Mitigation Services (NCDEQ-DMS).

Public Meetings

A public meeting was held by NC DOT on April 23, 2019 at the University of North Carolina, Charlotte Campus. Another public meeting will be held in the fall of 2019. Date and location to be determined.

Essential Fish Habitat

According to the October 20, 2016 Natural Resources Technical Report (NRTR) Update, there is no Essential Fish Habitat within the study area.

Cultural Resources

Pursuant to Section 106 of the National Historic Preservation Act of 1966, Appendix C of 33 CFR Part 325, and the 2005 Revised Interim Guidance for Implementing Appendix C, the District Engineer consulted district files and records and the latest published version of the National Register of Historic Places and initially determines that:

No historic properties, nor properties eligible for inclusion in the National Register, are present within the Corps' permit area; therefore, there will be no historic properties affected. The Corps subsequently requests concurrence from the SHPO (or THPO).

Endangered Species

Pursuant to the Endangered Species Act of 1973, the Corps reviewed the project area, examined all information provided by the applicant, and consulted the latest North Carolina Heritage Database. As of June 27, 2018, the U.S. Fish and Wildlife Service (USFWS) lists six federally protected species for Mecklenburg County, including the Michaux's sumac (Rhus michauxii), Northern long-eared bat (Myotis septentrionalis), Rusty-patched bumble bee (Bombus affinis), Schweinitz's sunflower (Helianthus schweinitzii), Smooth coneflower (Echinacea laevigata), and Carolina heelsplitter (Lasmigona decorata). Based on available information:

The Corps determines that the proposed project would not affect federally listed endangered or threatened species or their formally designated critical habitat for Michaux's sumac, Schweinitz's sunflower, Smooth coneflower, or Carolina heelsplitter.

Evaluation

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

Commenting Information

The USACE is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidated State Viewpoint or written position of the Governor, Indian Tribes, and other interested parties to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE to select the LEDPA for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The Corps of Engineers, Wilmington District, will receive written comments pertinent to the proposed work, as outlined above, until 5 pm, August 20, 2019. Comments should be submitted to Nicholle Braspennickx, 151 Patton Avenue, Room 208, Asheville, North Carolina 28801-5006, at (704) 510-0162, or by email to Nicholle.M.Braspennickx@usace.army.mil.

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427
Fax 803-328-5791

August 15, 2019

Attention: Nicholle Braspennickx
Army Corp. of Engineers – Wilmington District
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

Re. THPO #	SAW #	Project Description
2019-56-3	2015-02579	Authorization to discharge dredged or fill material in waters of the US associated with the proposed widening of NC 49 from John Kirk Drive to I-485

Dear Ms. Braspennickx,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail caitlinh@ccppcrafts.com.

Sincerely,

Caitlin Rogers for

Wenonah G. Haire
Tribal Historic Preservation Officer

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CHEROKEE NATION®
P.O. Box 948 • Tahlequah, OK 74465-0948 • 918-453-5000 • cherokee.org

Office of the Chief

Bill John Baker
Principal Chief
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S. Joe Crittenden
Deputy Principal Chief
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August 19, 2019

Nicholle M. Braspennickx
United States Army Corps of Engineers
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

Re: SAW-2015-02579

Ms. Nicholle M. Braspennickx:

The Cherokee Nation (Nation) is in receipt of your correspondence about **SAW-2015-02579**, **NCDOT U-5768**, and appreciates the opportunity to provide comment upon this project.

The Nation maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office reviewed this project, cross referenced the project's legal description against our information, and found no instances where this project intersects or adjoins such resources. Thus, the Nation does not foresee this project imparting impacts to Cherokee cultural resources at this time.

However, the Nation requests that the United States Army Corps of Engineers (USACE) halt all project activities immediately and re-contact our Offices for further consultation if items of cultural significance are discovered during the course of this project.

Additionally, the Nation requests that USACE conduct appropriate inquiries with other pertinent Tribal and Historic Preservation Offices regarding historic and prehistoric resources not included in the Nation's databases or records.

If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389

North Carolina Department of Natural and Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary Susi H. Hamilton

Office of Archives and History
Deputy Secretary Kevin Cherry

August 19, 2019

Nicholle Braspennickx nicholle.m.braspennickx@usace.army.mil
Corps of Engineers, Wilmington District
Asheville Regulatory Field Office
151 Patton Ave., Room 208
Asheville, NC 28801-5006

Re: Widen NC 49 from John Kirk Drive to I-485, U-5768, SAW 2015-02579, Mecklenburg County, ER 19-2337

Dear Ms. Braspennickx:

We have received a public notice concerning the above-referenced project. We have reviewed the materials submitted and offer the following comments.

The notice describes two build alternatives, Yellow and Purple. While several archaeological resources are located in the study area, all but one has been previously assessed as not eligible for the National Register of Historic Places. The one unassessed archaeological site is only potentially impacted by the Purple alternative. If the Yellow alternative is selected, we recommend that no additional work is necessary. If the Purple alternative is selected, we recommend additional testing at the unassessed site to determine its eligibility for the NRHP.

We have determined that the project as proposed will not have an effect on any historic structures.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Ramona Bartos, Deputy
Deputy State Historic Preservation Officer

CHARLOTTE.

April 10, 2015

Mr. Louis Mitchell, PE, Division 10 Engineer
North Carolina Dept. of Transportation
Division 10 Office
716 W Main St.
Albemarle, NC 28001

Subject: Coordination between State Transportation Improvement Program (STIP) Project #U-5768 (Improvements to University City Blvd. (NC 49) between John Kirk Dr. and Interstate 485) and the Eastern Circumferential Road

Dear Louis:

The purpose of this letter is to request that the City and NCDOT discuss expanding the limits of the STIP Project (#U-5768) described above to include the extension of the southern leg of the NC 49/Mallard Creek Church Rd. intersection. This proposed extension is known locally as the Eastern Circumferential Road (ECR) (see attached map). Specifically, CDOT believes that there would be increased efficiency and utility from a combined project.

In November 2014, voters in Charlotte approved a bond package that included $12 million for construction of the ECR between NC 49 and Back Creek Church Rd.

The final version of the 2016-2025 STIP includes the U-5768 project with ROW acquisition scheduled to begin in 2018 and construction scheduled to begin in 2020.

We expect that the advantages of combining these projects for environmental assessment, ROW acquisition and construction would include:

- ✓ Cost savings due to elimination of duplication of efforts
- ✓ Both streamlining and less confusion during public involvement activities
- ✓ Better coordination of the construction of street/highway network (including communication with the railroads).

In 2010 local and MPO staff worked with a consultant to determine the most efficient way to extend the ECR south toward Back Creek Church Rd. It was then determined that the best way to do so would be to build an at-grade intersection at NC 49 and then extend the roadway under the North Carolina Railroad before continuing south to intersect with Back Creek Church Rd.

DEPARTMENT OF TRANSPORTATION

600 East Fourth Street
Charlotte, NC 28202-2858
PH: 704/336-4119
FAX: 704/336-4400

The City has already contributed over $7 million for the construction of the railroad bridge over the future ECR. That project is currently under construction by NCDOT forces and anticipated to be completed by 2017.

We welcome the opportunity to talk with you about our request in the very near future. If you have questions about this letter or would like to schedule a meeting to discuss this matter, please contact Tim Gibbs with CDOT at 704.336.3917 or tgibbs@charlottenc.gov.

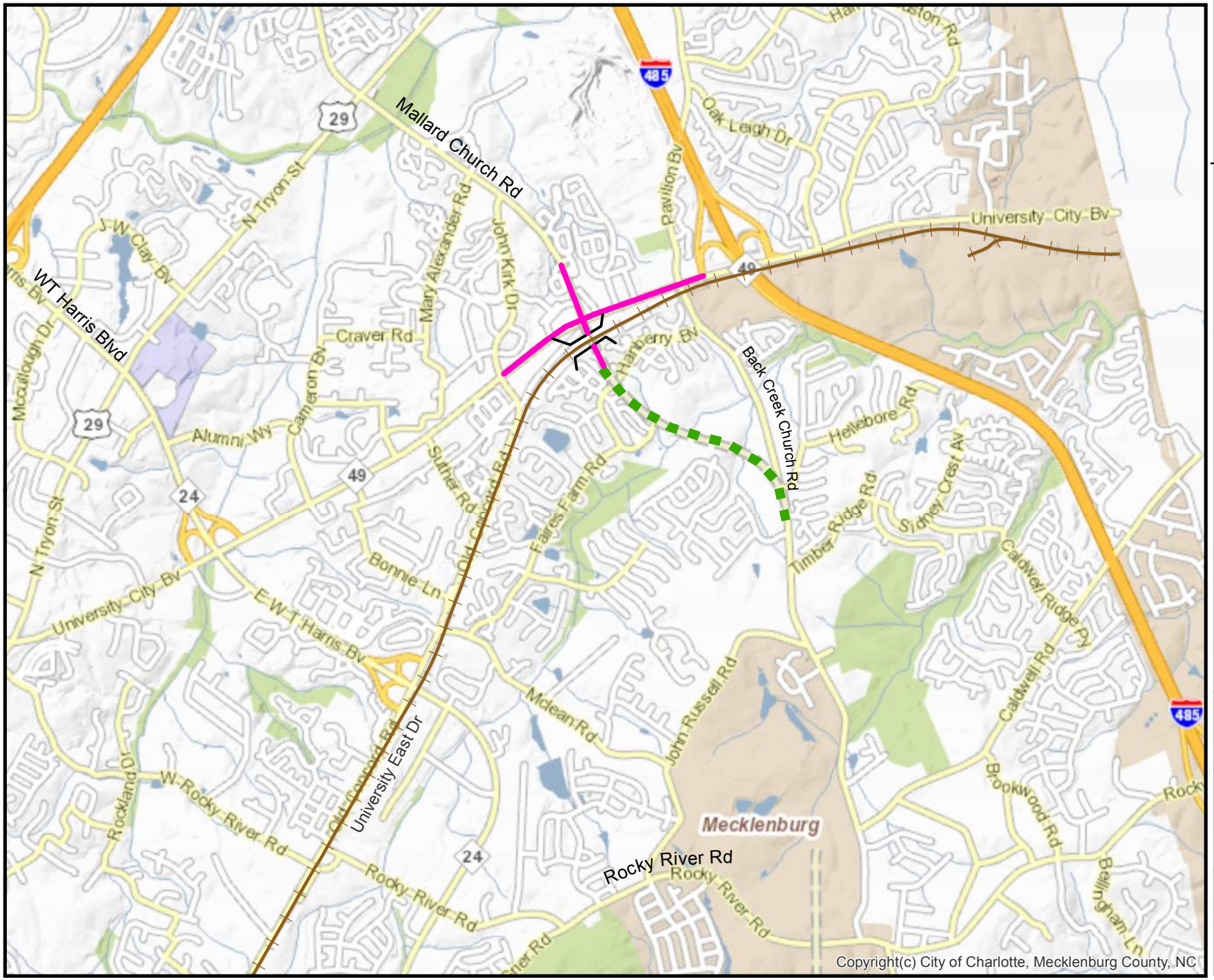
Sincerely,

Phillip Reiger
Assistant Director, CDOT

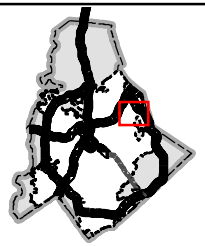
Attachment

cc: Danny Pleasant, AICP, CDOT Director
Liz Babson, PE, CDOT Deputy Director
Norm Steinman, AICP, CDOT
Tim Gibbs, AICP, CDOT
Johanna Quinn, PE, CDOT
Robert Cook, AICP, CRTPO
Calvin Leggett, PE NCDOT-Program Development Branch
Van Argabright, PE, NCDOT-STIP Unit
Richard Hancock, PE, NCDOT-PDEA
Zahid Baloch, PE, NCDOT-PDEA
Scott Cole, PE, NCDOT Division 10
Stuart Basham, NCDOT Division 10

NC 49/NCRR/Eastern Circumferential Road Projects



N



NCDOT STIP Project #U-5768

NCRR Rail Line

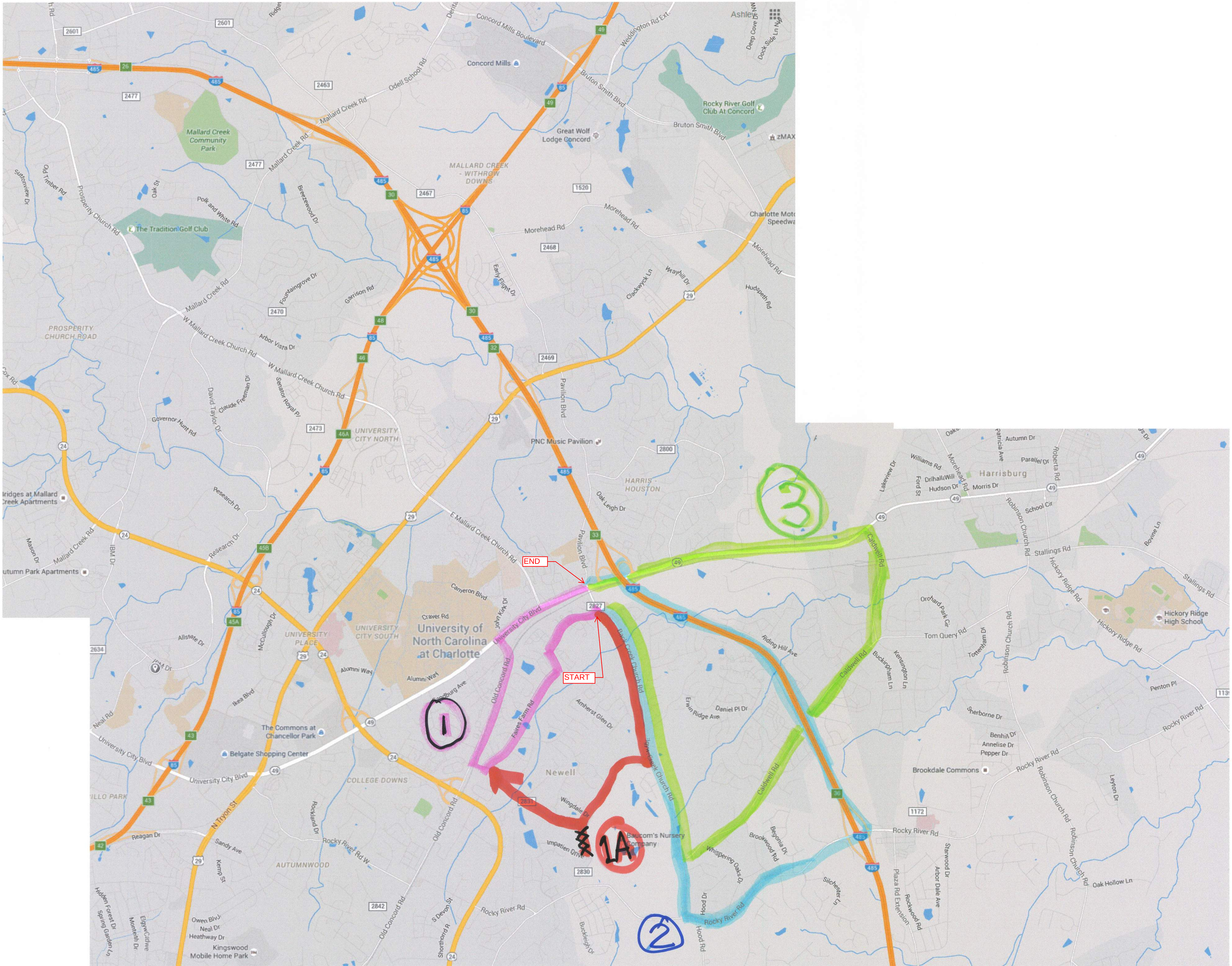
NCRR Double Track Project Bridge

Eastern Circumferential Road (ECR)

0 1,000 2,000 Feet

Planning & Design - GIS
April 9, 2015
GIS\Maps\
EasternCircumferentialProjects.mxd

CHARLOTTE. TRANSPORTATION



START
END
1
1A
2
3
University of North Carolina at Charlotte
University City Blvd
Old Concord Rd
Faires Farm Rd
Back Creek Church Rd
Caldwell Rd
Rocky River Rd
Pavilion Blvd
E Mallard Creek Church Rd
W Mallard Creek Church Rd
Mallard Creek Rd
Mallard Creek Community Park
The Tradition Golf Club
Prosperity Church Rd
PROSPERITY CHURCH ROAD
Concord Mills
Concord Mills Boulevard
Bruton Smith Blvd
Weddington Rd Ext.
Rocky River Golf Club At Concord
Great Wolf Lodge Concord
MALLARD CREEK - WITHROW DOWNS
Morehead Rd
Charlotte Motor Speedway
PNC Music Pavilion
HARRIS - HOUSTON
Oak Leigh Dr
Harrisburg
Stallings Rd
Robinson Church Rd
Hickory Ridge Rd
Hickory Ridge High School
Tom Query Rd
Brookdale Commons
UNIVERSITY CITY NORTH
UNIVERSITY CITY SOUTH
UNIVERSITY PLACE
COLLEGE DOWNS
AUTUMNWOOD
Newell
Baucom's Nursery Company
Wingdale Dr
Impatien Drive
Amherst Glen Dr
Whispering Oaks Dr
Hood Rd
The Commons at Chancellor Park
Belgate Shopping Center
N Tryon St
Reagan Dr
Research Dr
IBM Dr
Kingswood Mobile Home Park

BLUE ALIGNMENT
GREEN ALIGNMENT
ORANGE ALIGNMENT
RED ALIGNMENT
POTENTIAL CROSSOVER SEGMENTS
Margaret Wallace Rd.
Idlewild Rd.
Sam Newell Rd.
University of North Carolina at Charlotte
Mallard Creek Community Park
The Tradition Golf Club
Concord Mills
Great Wolf Lodge Concord
Rocky River Golf Club At Concord
PNC Music Pavilion
Baucom's Nursery Company
Independence High School
Meadowbrook
The Commons at Chancellor Park
Belgate Shopping Center
Kingswood Mobile Home Park
The Oasis At Regal Oaks
Forest Ridge Apartments
MALLARD CREEK - WITHROW DOWNS
UNIVERSITY CITY NORTH
UNIVERSITY CITY SOUTH
UNIVERSITY PLACE
HARRIS - HOUSTON
PROSPERITY CHURCH ROAD
COLLEGE DOWNS
AUTUMNWOOD
Newell
EASTWAY
HICKORY GROVE
OAK FOREST
SILVERWOOD
WINDSOR PARK
FARM POND
HICKORY RIDGE
NORTH SHARON AMITY
MARLWOOD
Wildwoods
WYNDEMERE CROSSING
University City Blvd
Plaza Rd Extension
Robinson Church Rd
Rocky River Rd
Albemarle Rd
E.W.T. Harris Blvd
Back Creek Church Rd
Hood Rd
Pence Rd
Lawyers Rd
Wilgrove Mint Hill Rd
Wilson Grove Rd
Lebanon Rd

TERMS OF USE OF NORTH CAROLINA RAILROAD COMPANY ("NCRR") DATA BY ENGINEERS, SURVEYORS OR RELATED ENTITIES ("USER") ("TERMS OF USE AGREEMENT" OR "AGREEMENT")

1) Parties to Agreement: This Terms of Use Agreement is between NCRR and User identified below (collectively referred to herein as "Parties").

2) Nature of Use: NCRR grants to the User a non-exclusive, non-sub-licensable, license to use NCRR GIS, CAD or other data. This license agreement applies to all GIS, CAD or other data acquired from NCRR ("Data"), regardless of how or in what form such Data is delivered, and as generally described in Section 7(a) herein.

3) No Updates: NCRR is not obligated to provide updates to Data in the event that newer versions become available.

4) Confidentiality: User acknowledges that the Data provided under this Agreement is valuable proprietary and confidential information of NCRR ("Confidential Information"). Confidential Information shall mean proprietary, business, trade secret and/or proprietary commercial information, design, or similar other information now or hereafter owned by or otherwise in the possession or control of or belonging to NCRR or any of their affiliates, related to the project described in Section 7(b) and/or NCRR business purposes. In connection with this Agreement and the project, all right and title to, and interest in, the Data disclosed to User shall be deemed to be or shall remain with NCRR.

5) No NCRR Liability: Any risk as to the use of the Data is entirely assumed by the User. NCRR and its directors, officers, agents, employees and subsidiaries shall not be liable for any damages of any kind resulting from use or misuse of any Data. To fullest extent permitted by law, User hereby releases NCRR and holds NCRR harmless from any and all such liability.

6) Disclaimer: The Data of NCRR is developed and maintained solely for NCRR business purposes, and is not guaranteed to be accurate. NCRR MAKES NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER. NCRR IS NOT RESPONSIBLE FOR POSSIBLE ERRORS, OMISSIONS, MISUSE, OR MISINTERPRETATION. NCRR GIS DATA IS PREPARED FOR REFERENCE PURPOSES ONLY AND SHOULD NOT BE USED, AND IS NOT INTENDED FOR, SURVEY OR ENGINEERING PURPOSES. ANY CAD DATA SHARED BY NCRR MAY BE ACCOMPANIED BY A SURVEYOR'S REPORT FROM A PROFESSIONAL LAND SURVEYOR DETAILING THE ACQUISITION METHOD, ACCURACY AND PURPOSE OF USE. USER IS SOLELY RESPONSIBLE FOR THE APPROPRIATE USE OF THE CAD DATA WITHIN THE STANDARD PRACTICES OF THE PROFESSION.

7)(a) General Description of Data: NCRR can provide data that may aid User in determining the historic NCRR centerline and/or the NCRR corridor boundary as well as provide positional references if needed. NCRR can also provide other historical documents, and suggest appropriate language for referencing this information. This data may be available in a number of different formats, including GIS Shapefiles, geodatabase, or CAD (various formats/releases/versions).

(b) Limitation on Use and Further Distribution: User agrees that the NCRR Data shall be used only for performing work for the following Project:

Project Title: Widen NC 49, John Kirk Dr to I-485. Realign Back Creek Church Road. Close at-grade Rail Crossing with Back Creek Church Road.

Project Number: NCDOT STIP U-5768

Stakeholders: NCDOT, Charlotte DOT, University City Partners, UNC-Charlotte

[Applicant to identify Project, including Project number and stakeholders]

If User seeks to use the NCRR Data to perform any additional work other than that described above, then User shall submit a new Data Disclosure form to NCRR. User may not sell, license, lend, donate, share, distribute or otherwise permit the distribution of the NCRR Data to any other entity, individual or third party, except to a User subcontractor approved by NCRR in advance and only for purposes of performing the work described above. User acknowledges that NCRR retains exclusive ownership of the NCRR Data and that User must take steps to protect both the intentional or accidental dissemination of the NCRR Data to third parties. Use agrees that any disclosure of the Data to third parties in violation of this Agreement may cause irreparable harm to NCRR, which may not be calculated or fully or adequately compensated by recovery of damages alone. Accordingly, User agrees that NCRR shall be entitled to seek interim and permanent injunctive relief, specific performance and other equitable remedies, in addition to any other relief to NCRR.

8) Applicable Law: This Agreement shall be construed, interpreted and applied in accordance with the laws of the State of North Carolina, provided that any conflict of laws provision of such state shall not be used to apply the laws of any other state or jurisdiction. User and NCRR agree that Raleigh, Wake County, North Carolina shall be the jurisdiction for the hearing and adjudication of any disputes arising from or in connection with this Agreement.

9) Binding of Successors/No Assignment: This Agreement and the rights and duties of the parties hereunder shall enure to the benefit of and be binding upon the parties, their representatives, employees, agents, parent or subsidiary corporations, affiliates, or successors. This Agreement and the rights and duties hereunder may not be assigned or delegated by either party

10) No Waiver: The failure by either party to enforce any provision or provisions of this Agreement shall not in any way be construed as a waiver of any such provision or provisions as to any future violation thereof, nor prevent that party thereafter from enforcing each and every other provision of this Agreement. The rights and remedies granted the parties herein are cumulative and the waiver by a party of any single remedy shall not constitute a waiver of such party's right to assert all other legal remedies available to him or it under the circumstances.

11) Entire Agreement: This Agreement constitutes the entire agreement of the parties with respect to the subject matter hereof and supersedes and replaces all other written or oral agreements between the parties hereto. This Agreement may be amended by agreement only if such amendment is in writing and signed by the parties hereto.

TO BE COMPLETED BY REPRESENTATIVE OF USER

Signature: Adam Archual Digitally signed by Adam Archual Date: 2019.02.06 13:27:45 -05'00' Date: 2/6/2019

Name (please print): Adam Archual Title: Project Manager

Firm: HNTB North Carolina, PC

Address: 343 E. Six Forks Rd. Ste 200 City: Raleigh St: NC Zip: 27609

Phone: (0442) 0442 - 0442 Email: aarchual@hntb.com

Please return completed, signed form to:
GIS and Survey Manager
Kristian Forslin, GISP, PLS
kristianforslin@ncrr.com
2809 Highwoods Blvd.
Raleigh, NC 27604
(919) 954-7601

From: Roberts, Tracy <teroberts1@ncdot.gov>
Sent: Thursday, February 04, 2016 11:40 AM
To: Adam Archual; Bradley Reynolds; Craig Parker
Subject: FW: U-5768 External Scoping/Merger Screening Meeting Summary
Attachments: U5768_ExternalScopingSummary (Final).pdf

For your files

From: Feller, Lisa M
Sent: Thursday, February 04, 2016 11:31 AM
To: Crystal.C.Amschler@usace.army.mil; Van Der Wiele, Cynthia ; 'marella_buncick@fws.gov'; Hood, Donna; Chambers, Marla J; Basham, Stuart L; Dosse, Linda; Argabright, Van; Moore, Kevin E; Billings, Amy A; Pendergraft, Kirby C; Lapham, Todd D; Harris, James B; Marshall, Harrison; Dagnino, Carla S; Turchy, Michael A; Landis, Ashley (alandis@ci.charlotte.nc.us); Gibbs, Tim (tgibbs@ci.charlotte.nc.us); Quinn, Johanna (jquinn@ci.charlotte.nc.us) (jquinn@ci.charlotte.nc.us)
Cc: Robinson, Beverly G; Roberts, Tracy
Subject: U-5768 External Scoping/Merger Screening Meeting Summary

Good morning Everyone,

Attached is the Final U-5768 External Scoping/Merger Screening Meeting Summary. There were no changes to the draft, so I kept the date the same. We are in the process of compiling and drafting the information that Crystal requested (her email is included as part of the attached summary) and will provide this information to the group once it is finalized. If you have any questions or need additional information, please let me know.

Best regards,
Lisa

Lisa M. Feller, PE
Project Planning Engineer
PDEA / Project Development Section – Western Region

919 707 6022 office
lfeller@ncdot.gov

1548 Mail Service Center
Raleigh, NC 27699-1548

From: Adam Archual
Sent: Tuesday, December 15, 2015 8:32 AM
To: Craig Parker; Roberts, Tracy (teroberts1@ncdot.gov)
Cc: Bradley Reynolds
Subject: RE: U-5768 External Scoping and Merger Screening DRAFT Meeting

Thank you Craig

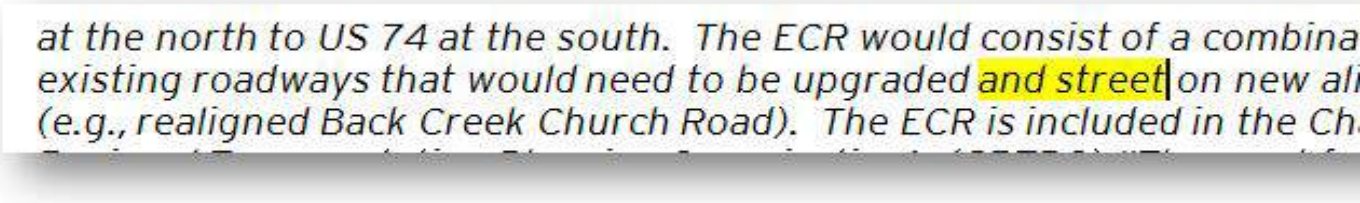
Adam

From: Craig Parker
Sent: Tuesday, December 15, 2015 8:31 AM
To: Adam Archual; Roberts, Tracy (teroberts1@ncdot.gov)
Cc: Bradley Reynolds
Subject: RE: U-5768 External Scoping and Merger Screening DRAFT Meeting

Adam,

I only have two comments:

1. At the top of page 3, it looks like there is a missing word or two…



2. I didn't see anything in the notes about the major power transmission lines in the study area and the recommendation to avoid them at all costs.

Great notes! Very thorough!

W. Craig Parker, PE
Roadway Design Project Manager
Office 919.424.0451 | Cell 919.618.1776 | Fax 919.546.9421

From: Adam Archual
Sent: Friday, December 11, 2015 4:15 PM
To: Roberts, Tracy (teroberts1@ncdot.gov); Craig Parker
Cc: Bradley Reynolds
Subject: U-5768 External Scoping and Merger Screening DRAFT Meeting

Please review the attached meeting summary and provide comments to me (and Tracy). Will appreciate if you can have your reviews complete by Tuesday 12/15 at lunch so they can be incorporated into a draft for distribution. The summary references the attached email, too – the intent to provide the email as an attachment to the summary.

I will be revising the Environmental Features Map and the Scoping Data Sheets (last action item) to be distributed with the Final meeting summary.

Thank you,
Adam

From: Bradley Reynolds
Sent: Saturday, December 19, 2015 4:43 PM
To: Adam Archual
Cc: Craig Parker; Roberts, Tracy (teroberts1@ncdot.gov)
Subject: RE: U-5768 External Scoping and Merger Screening DRAFT Meeting

Adam,
I have no comments…looks good.

Bradley

From: Adam Archual
Sent: Tuesday, December 15, 2015 8:32 AM
To: Craig Parker; Roberts, Tracy (teroberts1@ncdot.gov)
Cc: Bradley Reynolds
Subject: RE: U-5768 External Scoping and Merger Screening DRAFT Meeting

Thank you Craig

Adam

From: Craig Parker
Sent: Tuesday, December 15, 2015 8:31 AM
To: Adam Archual; Roberts, Tracy (teroberts1@ncdot.gov)
Cc: Bradley Reynolds
Subject: RE: U-5768 External Scoping and Merger Screening DRAFT Meeting

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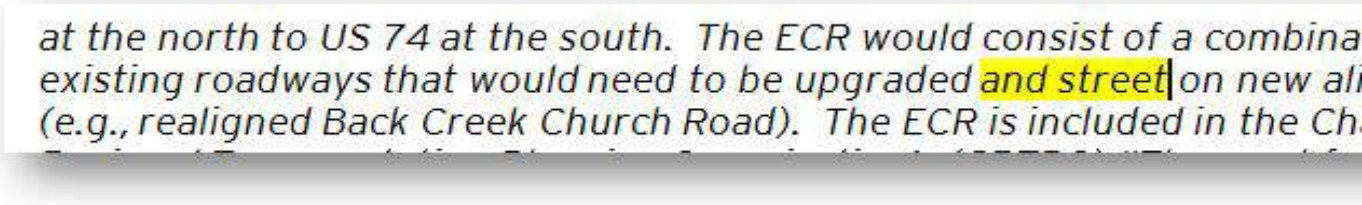

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Great notes! Very thorough!

W. Craig Parker, PE
Roadway Design Project Manager
Office 919.424.0451 | Cell 919.618.1776 | Fax 919.546.9421

From: Adam Archual
Sent: Friday, December 11, 2015 4:15 PM
To: Roberts, Tracy (teroberts1@ncdot.gov); Craig Parker
Cc: Bradley Reynolds
Subject: U-5768 External Scoping and Merger Screening DRAFT Meeting

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I will be revising the Environmental Features Map and the Scoping Data Sheets (last action item) to be distributed with the Final meeting summary.

Thank you,
Adam

Amschler, Crystal C CIV USARMY CESAW (US)

From: Amschler, Crystal C SAW
Sent: Wednesday, August 10, 2016 1:17 PM
To: 'Feller, Lisa M'
Subject: RE: U-5768, External Scoping/Merger Screening, Division 10, Mecklenburg County (UNCLASSIFIED)

Thanks Lisa. I appreciate the additional info and the documents.

Crystal C. Amschler
Project Manager
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28403
(828)-271-7980 Ext 231

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at:

http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Feller, Lisa M [mailto:lfeller@ncdot.gov]
Sent: Tuesday, August 09, 2016 11:22 AM
To: Amschler, Crystal C SAW <Crystal.C.Amschler@usace.army.mil>
Cc: Robinson, Beverly G <brobinson@ncdot.gov>; Roberts, Tracy <teroberts1@ncdot.gov>
Subject: [EXTERNAL] RE: U-5768, External Scoping/Merger Screening, Division 10, Mecklenburg County (UNCLASSIFIED)

Hi Crystal,

By closing the railroad crossing at the NC 49/Back Creek Church Road (BCCR) intersection, there would be no need to construct additional capacity (turn lanes) between NC 49 and BCCR at this location. The result would be an improvement in safety (no potential for train/pedestrian/car conflicts) and improved traffic operations due to the elimination of vehicle delays caused by a passing train. Another benefit of including the railroad crossing closure in the U-5768 project is that it would eliminate throwaway of new construction (i.e. new lanes that would be needed) should the closure occur later as a separate project. We wouldn't want to add new capacity at this intersection only to have it rendered obsolete once the closure occurred. For these reasons it makes sense to construct everything together.

I have attached the EA and FONSI for P-5208. If you would like to have the Appendices, I will have to send those via FTS due to a 30Mb file size. If you need anything else, please let me know.

Thanks!

Lisa M. Feller, PE
Project Planning Engineer
PDEA / Project Development Section - Western Region
North Carolina Department of Transportation

919 707 6022 office
lfeller@ncdot.gov

From: Amschler, Crystal C SAW
To: "Feller, Lisa M"
Subject: RE: U-5768, External Scoping/Merger Screening, Division 10, Mecklenburg County (UNCLASSIFIED)
Date: Friday, August 05, 2016 12:10:00 PM

Lisa,

Thanks for the updated document and the clarification.

Just for my clarification, the sections that says "Closing the railroad crossing at Back Creek Church Road and NC 49 would eliminate train conflicts with vehicles and pedestrians, and would result in improved traffic operations at the intersection due to the removal of multiple traffic movements with the closure," refers to the necessity of constructing turning lanes for the widened NC 49 at its intersection with Back Creek Church Road, and how those turning lanes at the existing location could not be long enough due to the close proximity of the intersection to the I485 ramps? I read back on my notes from when we spoke and I think that I understand correctly but just wanted to verify with you that my interpretation is correct.

Also, do you have the EA and FONSI for the P5208 project that discusses bridging the rail crossing at the existing back creek? If so can you shoot that over to me for my review and records.

Thanks,

Crystal C. Amschler
Project Manager
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28403
(828)-271-7980 Ext 231

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at:

http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

-----Original Message-----
From: Feller, Lisa M [mailto:lfeller@ncdot.gov]
Sent: Friday, August 05, 2016 9:08 AM
To: Amschler, Crystal C SAW <Crystal.C.Amschler@usace.army.mil>
Cc: Van Der Wiele, Cynthia <VanDerWiele.Cynthia@epa.gov>; Buncick, Marella <Marella_Buncick@fws.gov>; Chambers, Marla J <marla.chambers@ncwildlife.org>; Dagnino, Carla S <cdagnino@ncdot.gov>; Turchy, Michael A <maturchy@ncdot.gov>; Hood, Donna <donna.hood@ncdenr.gov>; Roberts, Tracy <teroberts1@ncdot.gov>; 'mmagnasco@ci.charlotte.nc.us'; Robinson, Beverly G <brobinson@ncdot.gov>; Moore, Kevin E <kmoore@ncdot.gov>; Basham, Stuart L <slbasham@ncdot.gov>; Cole, Scott <scole@ncdot.gov>; Landis, Ashley (alandis@ci.charlotte.nc.us) <alandis@ci.charlotte.nc.us>
Subject: [EXTERNAL] RE: U-5768, External Scoping/Merger Screening, Division 10, Mecklenburg County (UNCLASSIFIED)

Sorry Everyone. I neglected to attach the memo…

Happy Friday!

Appendix B: Cultural Resources

Project Tracking No.:

15-11-0031

NO ARCHAEOLOGICAL SURVEY REQUIRED FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.

PROJECT INFORMATION

Project No:	**U-5768**	*County:*	**Mecklenburg**
WBS No:	**50181.1.R1**	*Document:*	**Environmental Assessment**
F.A. No:	**N/A**	*Funding:*	☒ State ☐ Federal

Federal Permit Required? ☒ Yes ☐ No *Permit Type:* **Section 404 Individual**

Project Description: The NCDOT proposes to: 1) widen NC 49 to a multi-lane, median-divided roadway between John Kirk Drive and I-485, a distance of about 1 mile, 2) realign Back Creek Church Road on new location to the NC 49/Mallard Creek Church Road intersection, a distance of about 1.3 miles, and 3) close the existing at-grade railroad crossing at Back Creek Church Road and NC 49. An Area of Potential Effects (APE) measuring about 1 mile long by 151.1 feet wide will be considered for the widening along NC 49, the ROW for which is currently set at 160-190 feet. An Area of Potential Effects (APE) measuring about 1.3 miles long by 110 feet wide will be considered for the realignment of Back Creek Church Road, all of which will be on new location. The overall APE for the proposed project encompasses about 38.9 acres, inclusive of any existing roadways to be improved.

SUMMARY OF CULTURAL RESOURCES REVIEW

Brief description of review activities, results of review, and conclusions:

The State Historic Preservation Office/Office of State Archaeology has previously reviewed the closure of the existing at-grade railroad crossing at Back Creek Church Road and NC 49 (ER 07-2308), and were aware of no known archaeological sites within the proposed project area. Therefore, their office recommended no archaeological investigation to be conducted in connection with the project. That recommendation remains valid for that component of the proposed project. For the two (2) other components, a map review and site file search was conducted at the Office of State Archaeology (OSA) on Thursday, December 17, 2015. Several archaeological surveys have been conducted within the vicinity of the proposed project including investigations as part of the East Charlotte Outer Loop studies, and as a result of those surveys, at least ten (10) archaeological sites have been recorded within one-half (1/2) mile of the proposed project. Digital copies of HPO's maps (Harrisburg Quadrangle) as well as the HPOWEB GIS Service (http://gis.ncdcr.gov/hpoweb/) were last reviewed on Friday, December 18, 2015. Although various known historic architectural resources are located along the project corridor, intact archaeological deposits associated with such resources are not anticipated within the footprint of the proposed project. In addition, topographic maps, historic maps (NCMaps website), USDA soil survey maps, and aerial photographs were utilized and inspected to gauge environmental factors that may have contributed to historic or prehistoric settlement within the project limits, and to assess the level of modern, slope, agricultural, hydrological, and other erosive-type disturbances within and surrounding the archaeological APE.

Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:

Although State funds will be used for this project, a Federal permit will be required, and temporary and permanent easements are assumed to be needed pending completion of preliminary designs. At this time, we are in compliance with NC GS 121-12a since there are no eligible (i.e. National Register-listed) archaeological resources located within the project's Area of Potential Effects (APE) that would require our attention. Based on the components of the proposed project, activities will take place beyond the NCDOT's existing ROW, specifically on the new location section of Back Creek Church Road. From an environmental perspective, the Study Area falls within a highly urbanized and residential area and consists of the rolling terrain typical of North Carolina's Southern Piedmont physiographic region. Numerous soil types are present throughout the APE, with most soil conditions (urban/disturbed, eroded, sloped, and somewhat poorly drained) not favorable for preserving intact archaeological sites/resources. Preservation of archaeological materials within these soil type areas is likely to be poor. Small sections of the APE that fall in areas of favorable conditions, however, have either been subjected to modern development or previous archaeological investigations as part of alternative selection studies for the East Charlotte Outer Loop (Biblio# 2616, 2476, and 3607). In addition, areas adjacent to the corridor for the NCRR were considered during studies for track addition from Haydock to Junker (TIP# P-5208 [formerly P-3414N]). Thereafter, any remaining areas that could have been potentially surveyed were also ruled out after reviewing aerials from 1993, 1998, and 2015, which revealed a significant amount of erosion and development. As part of their environmental review, OSA recommended no archaeological surveys for many of the surrounding residential subdivisions (e.g. Faires Farm [ER 90-8449], Back Creek Forest [ER 93-7262], Back Creek II, and Arbor Ridge), stating that the chances of significant archaeological sites being found were low. Based on the presence of urban/disturbed/eroded/ sloped/somewhat poorly drained soils and the fact that a large portion of the APE was previously surveyed, it is believed that the current APE, as depicted, is unlikely to contain intact and significant archaeological resources. No archaeological survey is required for this project. If design plans change or are made available prior to construction, then additional consultation regarding archaeology will be required. At this time, no further archaeological work is recommended. If archaeological materials are uncovered during project activities, then such resources will be dealt with according to the procedures set forth for "unanticipated discoveries," to include notification of NCDOT's Archaeology Group.

SUPPORT DOCUMENTATION

See attached: ☐ Map(s) ☐ Previous Survey Info ☐ Photos ☐ Correspondence
☐ Photocopy of County Survey Notes Other:

FINDING BY NCDOT ARCHAEOLOGIST

NO ARCHAEOLOGY SURVEY REQUIRED

Paul J Mohler

December 18, 2015

NCDOT ARCHAEOLOGIST **Date**

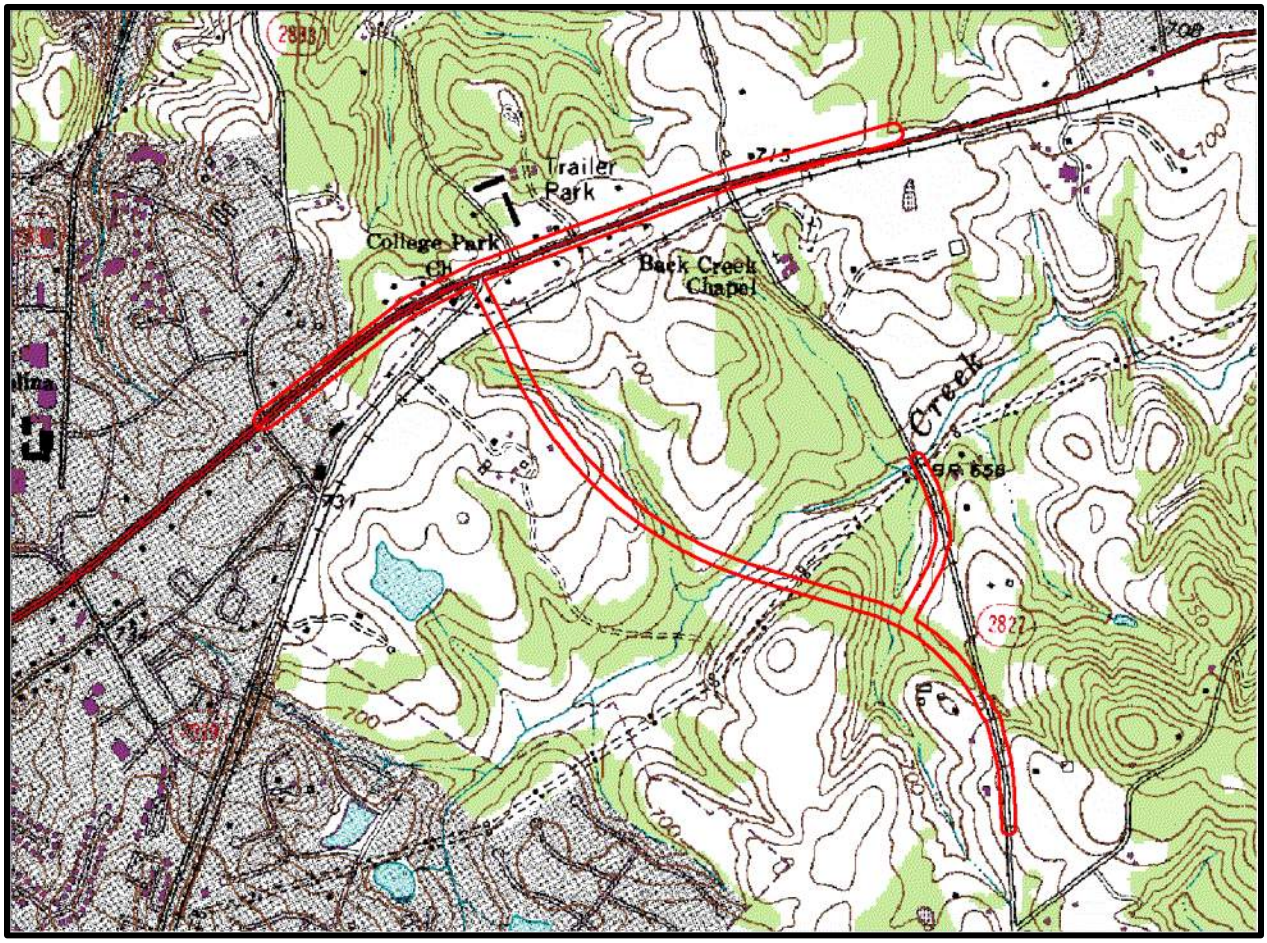
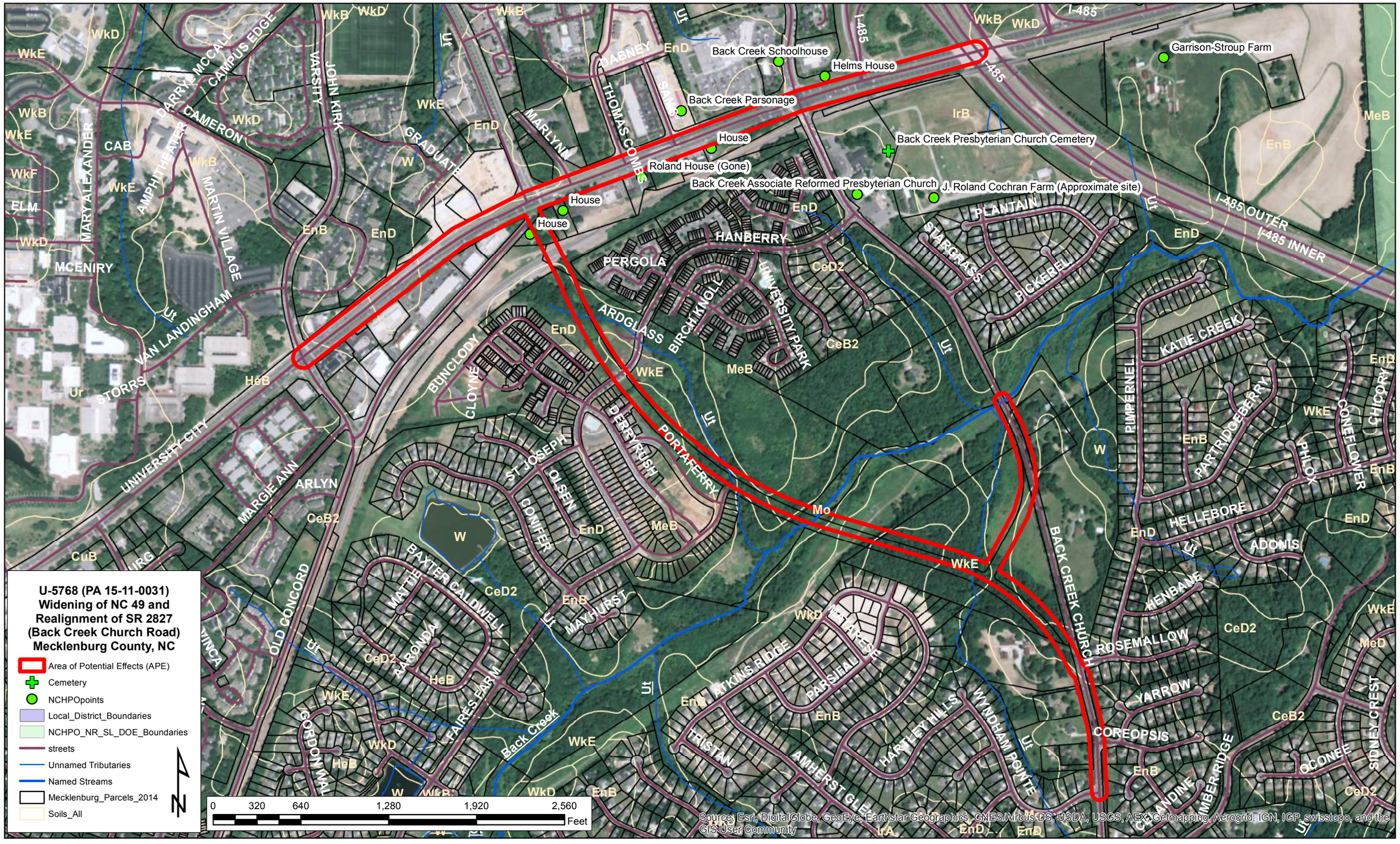


Figure 1: Harrisburg, NC (USGS 1993).



U-5768 (PA 15-11-0031)
Widening of NC 49 and Realignment of SR 2827 (Back Creek Church Road)
Mecklenburg County, NC

- Area of Potential Effects (APE)
- Cemetery
- NCHPOpoints
- Local_District_Boundaries
- NCHPO_NR_SL_DOE_Boundaries
- streets
- Unnamed Tributaries
- Named Streams
- Mecklenburg_Parcels_2014
- Soils_All

Project Tracking No. (Internal Use)

15-11-0031

HISTORIC ARCHITECTURE AND LANDSCAPES
SURVEY REQUIRED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	U-5768	***County***:	Mecklenburg
WBS No.:	50181.1.R1	***Document Type***:	
Fed. Aid No:		***Funding***:	X State Federal
Federal Permit(s):	X Yes No	***Permit Type(s)***:	Section 404 Individual
Project Description: Widen NC 49 from John Kirk Drive to I-485; realign Back Creek Church Road (SR 2827) on new location to the NC 49/Mallard Creek Church Road intersection; close the at-grade railroad crossing on Back Creek Church Road (SR 2827) at NC 49 (off-site detour characterized as "to be determined" in review request).			

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

DESCRIPTION OF REVIEW ACTIVITIES, RESULTS, AND CONCLUSIONS: HPOWeb reviewed on 14 December 2015 and yielded ten SS and no NR, SL, DE, or LD in the Area of Potential Effects (APE). Mecklenburg County current mapping, aerial photography, and tax information identified an urban APE of predominantly recent commercial and residential development with several pre-1960s resources (viewed 14 December 2015). Four bridges (Numbers 186, 676, 938, and 844 (railroad)) do not meet National Register eligibility criteria as they all date from the 1990s and are not technologically or aesthetically significant.

Comprehensive architectural survey of Mecklenburg County (1980s to the present) recorded the SS noted above, some of which no longer stand. NCDOT studies for rail projects (P-3414N, P-5208, and P-3814A) between 2007 and 2010 addressed some of the resources in the current project area and now warrant revisiting. Verification and evaluation of recorded pre-1960s resources, including a re-evaluation of the Back Creek Associate Reformed Presbyterian Church and Cemetery (MK1255), as well as identification of any previously unrecorded resources are necessary to complete the review. No National Register-listed properties are located within the APE. The APE conforms to the current project study area (see attached map).

THE PROJECT WILL BE REVIEWED FOR BOTH GS 121-12(A) AND SECTION 106 COMPLIANCE.

SUPPORT DOCUMENTATION

X Map(s) ☐Previous Survey Info. ☐Photos ☐Correspondence ☐Design Plans

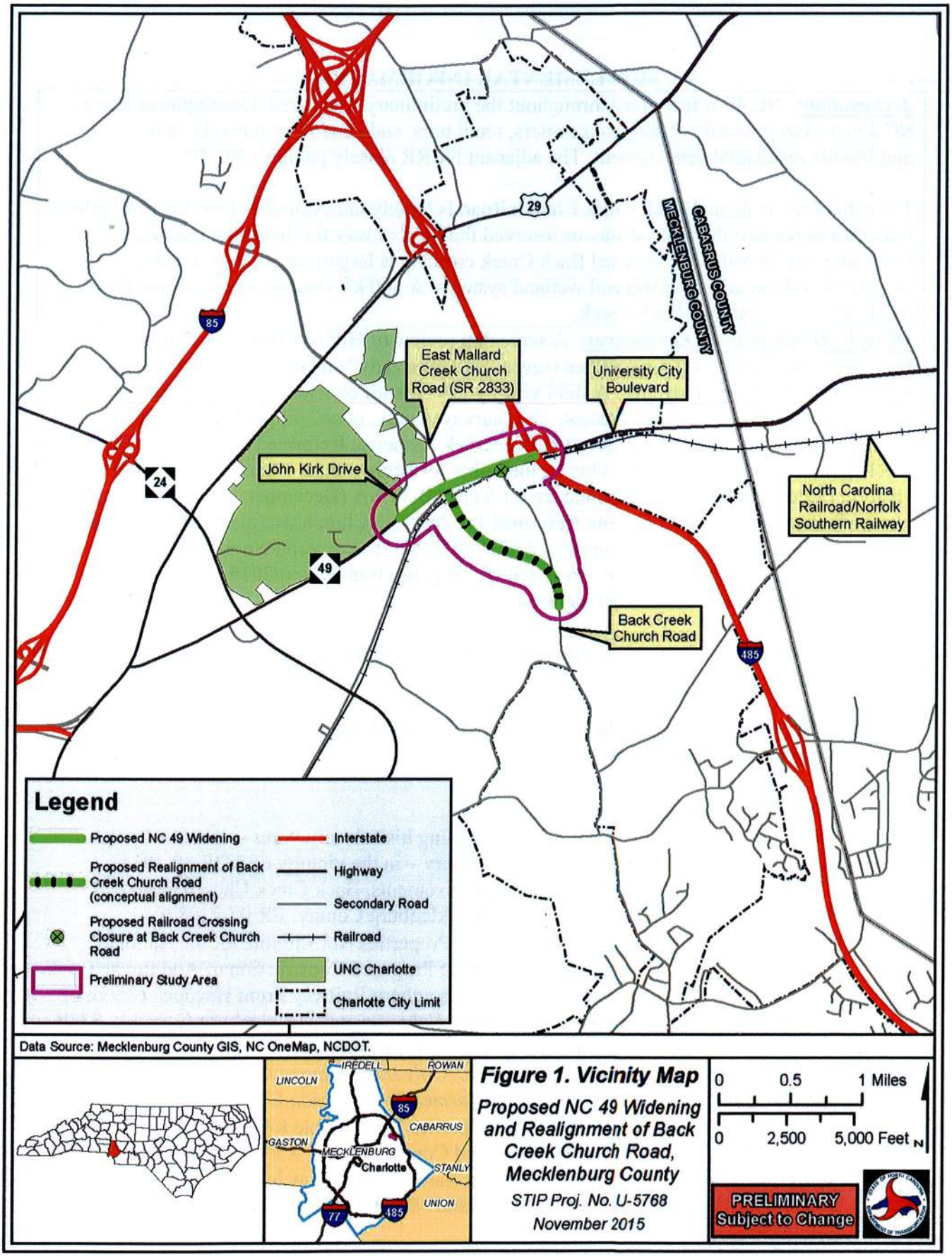
FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- **SURVEY REQUIRED**

Vanessa E. Patrick — 5 January 2016

NCDOT Architectural Historian — Date

Tracking No. 15-11-0031



Project Tracking No. (Internal Use)

15-11-0031

HISTORIC ARCHITECTURE AND LANDSCAPES
NO HISTORIC PROPERTIES PRESENT OR AFFECTED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	U-5768	***County***:	Mecklenburg
WBS No.:	50181.1.R1	***Document Type***:	
Fed. Aid No:		***Funding***:	X State ☐ Federal
Federal Permit(s):	X Yes ☐ No	***Permit Type(s)***:	Section 404 Individual
Project Description: Widen NC 49 from John Kirk Drive to I-485; realign Back Creek Church Road (SR 2827) on new location to the NC 49/Mallard Creek Church Road intersection; close the at-grade railroad crossing on Back Creek Church Road (SR 2827) at NC 49 (off-site detour characterized as "to be determined" in review request).			

SUMMARY OF HISTORIC ARCHICTECTURE AND LANDSCAPES REVIEW

☐ There are no National Register-listed or Study Listed properties within the project's area of potential effects.

☐ There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.

☐ There are no properties within the project's area of potential effects.

☐ There are properties over fifty years old within the area of potential effects, but they do not meet the criteria for listing on the National Register.

X There are no historic properties present or **affected** by this project. (Attach any notes or documents as needed.)

Date of field visit: April 2016

DESCRIPTION OF REVIEW ACTIVITIES, RESULTS, AND CONCLUSIONS: HPOWeb reviewed on 14 December 2015 and yielded ten SS, and no NR, SL, DE, or LD properties in the Area of Potential Effects (APE). Mecklenburg County current GIS mapping, aerial photography, and tax information identified an urban APE of predominantly recent commercial and residential development, with several pre-1960s resources (viewed 14 December 2015). Four bridges (Numbers 186, 676, 938, and 844 (railroad)) do not meet National Register eligibility criteria as they all date from the 1990s and are not technologically or aesthetically significant. The APE conforms to the current project study area (see attached map).

Comprehensive architectural survey of Mecklenburg County (1980s to the present) recorded the SS noted above, some of which no longer stand. NCDOT studies for rail projects (P-3414N, P-5208, and P-3814A) undertaken between 2007 and 2010 addressed some of the resources in the current project area, all needing revisiting. On-site identification and evaluation of both previously recorded and unrecorded pre-1970 resources in the U-5768 APE were carried out in April 2016. Of the nine properties surveyed, none are considered of sufficient significance to

warrant further investigation, and nearly all have lost integrity through alteration.

No National Register listed properties are located within the APE. No resources of concern are located in the APE, so a finding of "no historic properties present or affected" will satisfy both Section 106 and GS 121-12(a) compliance requirements.

Should any aspect of the project design change, please notify NCDOT Historic Architecture as additional review may be necessary.

Survey photographs and related materials on file at NCDOT – Historic Architecture

SUPPORT DOCUMENTATION

X Map(s) ☐Previous Survey Info. ☐Photos Correspondence ☐Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes – **NO HISTORIC PROPERTIES PRESENT OF AFFECTED**

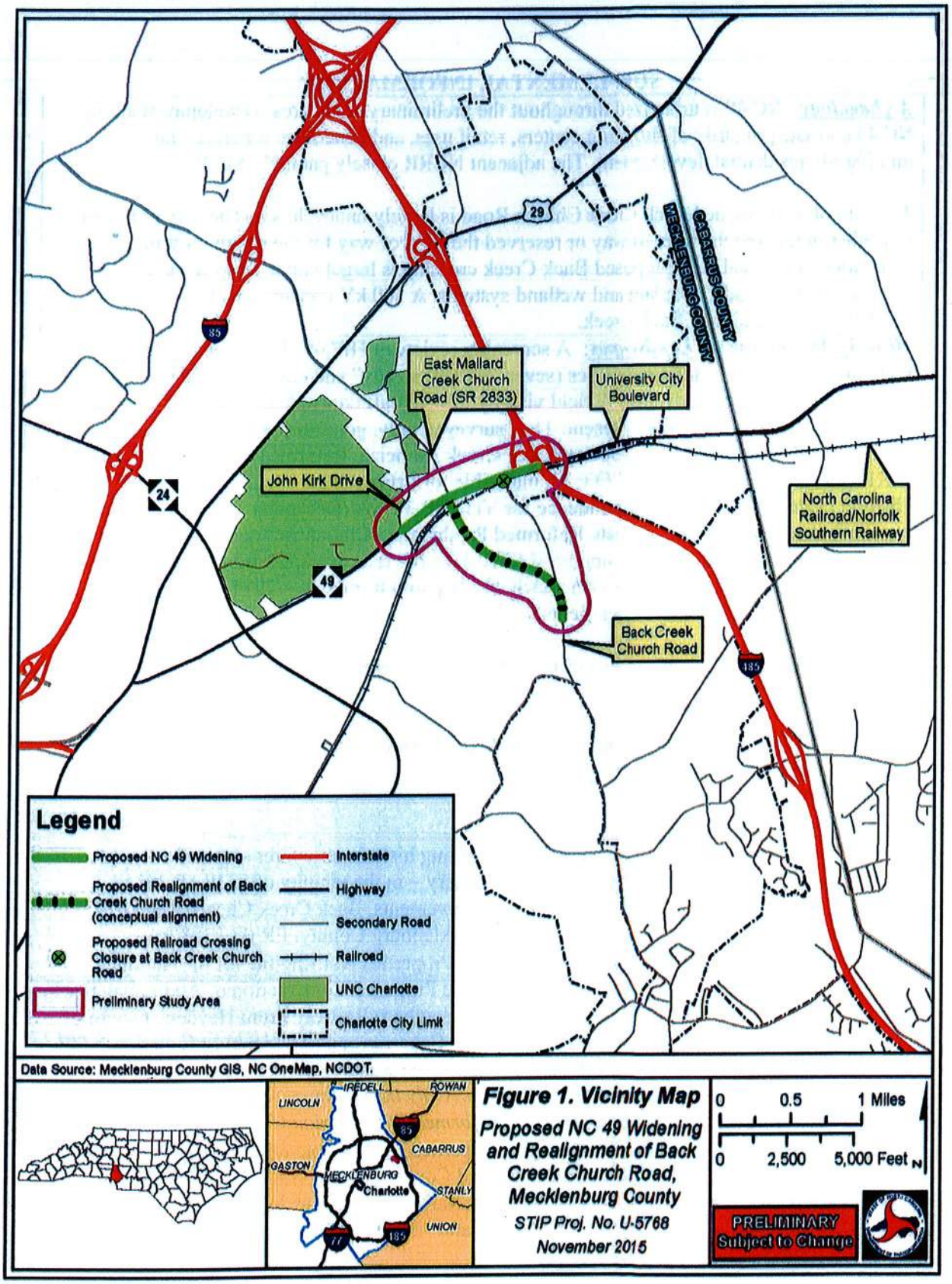
Vanessa E. Patrick — 20 May 2016

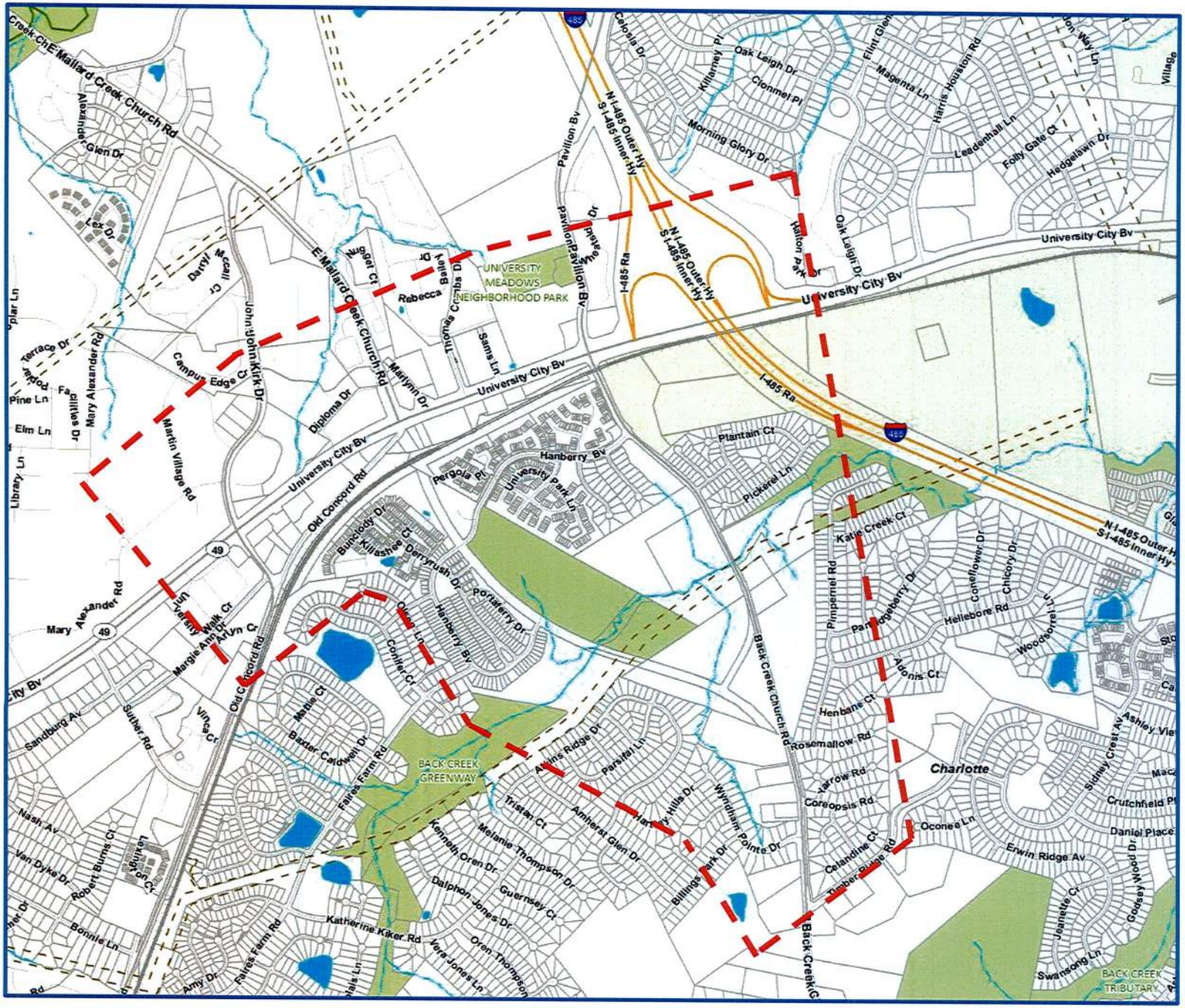
NCDOT Architectural Historian — Date

U-5768, Mecklenburg County
WBS No. 50181.1.R1
Tracking No. 15-11-0031
Page 2

Tracking No. 15-11-0031

REQUEST FOR CULTURAL RESOURCES REVIEW FORM – ATTACHMENTS





U-5768, Mecklenburg County

Area of Potential Effects (APE) — —

Base map: Current Mecklenburg County GIS, nts

Tracking No. 15-11-0031

Project Tracking No. (Internal Use)

REQUEST FOR CULTURAL RESOURCES REVIEW FORM

MEMORANDUM TO:	Drew Joyner, Human Environment Section 1598 Mail Service Center, Raleigh, NC 27699-1598 Send Electronic Submittals to: **PAtracker@ncdot.gov**
ATTENTION:	Matt Wilkerson, Archaeology Supervisor Mary Pope Furr, Historic Architecture & Landscapes Supervisor
FROM:	**LISA FELLER, P.E.** **PROJECT DEVELOPMENT ENGINEER** **PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS**
DATE:	November 11, 2015

PROJECT INFORMATION

Project No:	U-5768	***County***:	Mecklenburg
WBS No**:	50181.1.R1	***Document Type:***	Environmental Assessment
Fed. Aid No:	Not Applicable	***Funding***:	☒ State ☐ Federal
USGS Quad Name:	Harrisburg, North Carolina	***Project Schedule***:	EA – March 2017 FONSI – September 2018
Project Description: Widening of NC 49 from John Kirk Drive to I-485; realign Back Creek Church Road on new location to the NC 49/Mallard Creek Church Road intersection; close the at-grade railroad crossing on Back Creek Church Road at NC 49. See attached Figure 1 (Vicinity Map) in Attachments. Though federal funding is not currently anticipated for this project, a federal EA is being prepared in case NCDOT may want to utilize federal funds should they become available.			

****** Work cannot begin until a charge number is provided that can be billed to by staff in the Human Environment Section.

DESIGN INFORMATION

Project Length:	NC 49 Widening – Approx. 1.0 mile Back Creek Church Road Realignment– Approx.1.3 miles	***Detour Route***:	To Be Determined
Existing ROW:	NC 49 – 160 to 190 feet	***Proposed ROW:***	To Be Determined
Existing X-section:	NC 49 – 4-lane, median-divided facility Back Creek Church Road – 2 lanes	***Proposed X-section***:	NC 49 – multi-lane median divided roadway with multiuse path and sidewalk; Back Creek Church Road Realignment – 4-lane, median divided roadway with multiuse path and sidewalk.
Structure to be Replaced:	None	***Structure Build Date***:	Not Applicable

Additional Design Information: The proposed project consists of three components: (1) the widening of NC 49 to a multi-lane, median-divided roadway between John Kirk Road and I-485 (approximately 1 mile), (2) the realignment of Back Creek Church Road (known locally as the Eastern Circumferential Road) (approximately 1.3 miles), and (3) the closure of the existing at-grade rail crossing with the North Carolina Railroad (NCRR) at Back Creek Church Road and NC 49.

The existing Back Creek Church Road would be terminated at the railroad crossing. Access to NC 49 would be provided by the proposed realignment of Back Creek Church Road.

The realignment of Back Creek Church Road (Eastern Circumferential Road) would result in a four legged intersection at East Mallard Creek Church Road and NC 49. The proposed Back Creek Church Road realignment would pass under the NCRR south of NC 49 where a railroad bridge is currently under construction (P-5208). The railroad bridge is expected to be completed late 2015 or early 2016. To bring the proposed Back Creek Church Road realignment to grade under the NCRR, the existing East Mallard Creek Church Road and NC 49 intersection would be lowered approximately 12 feet.

PERMIT & EASEMENT INFORMATION

USACE Permit Required:	☒ Yes ☐ No	***Type of Permit***:	Section 404 Individual Permit (anticipated)
Easements Required:	☒ Yes ☐ No	***Temporary or Permanent:***	Temporary and permanent easements are assumed to be needed pending completion of preliminary designs.
USFS Property:	☐ Yes ☒ No	***TVA Permit Required***:	☐ Yes ☒ No

Additional Permit & Easement Information: Coordination with the USACE will be done during merger screening/external scoping to confirm the necessary permits.

The need for easements will be confirmed upon completion of the preliminary designs.

ATTACHMENTS

REQUIRED

☒ Vicinity Map Showing Project Location (Figure 1)

☒ USGS Quad Map Showing Project Location (Figure 2)

OPTIONAL –but providing this information will expedite project review

☐ Design Plans

☒ Photos

☐ Agency Input Letters

☐ NCDOT Input Letters

☐ Scoping Meeting Minutes

☐ Aerial with Study Area, Project Termini, and Y-Lines indicated

SUBMIT THIS FORM AND ATTACHMENTS ELECTRONICALLY TO:
PAtracker@ncdot.gov

SUPPLEMENTAL INFORMATION

Archaeology: NC 49 is urbanized throughout the preliminary study area. Development along NC 49 consists primarily of shopping centers, retail uses, and general commercial and multifamily residential development. The adjacent NCRR closely parallels NC 49.

The path of the realigned Back Creek Church Road is largely undeveloped. The City of Charlotte has either purchased the right of way or reserved the right of way for the future Eastern Circumferential Road. The proposed Back Creek crossing is largely undeveloped and is associated with broad floodplain and wetland systems. A 500 kV transmission line roughly parallels the south side of Back Creek.

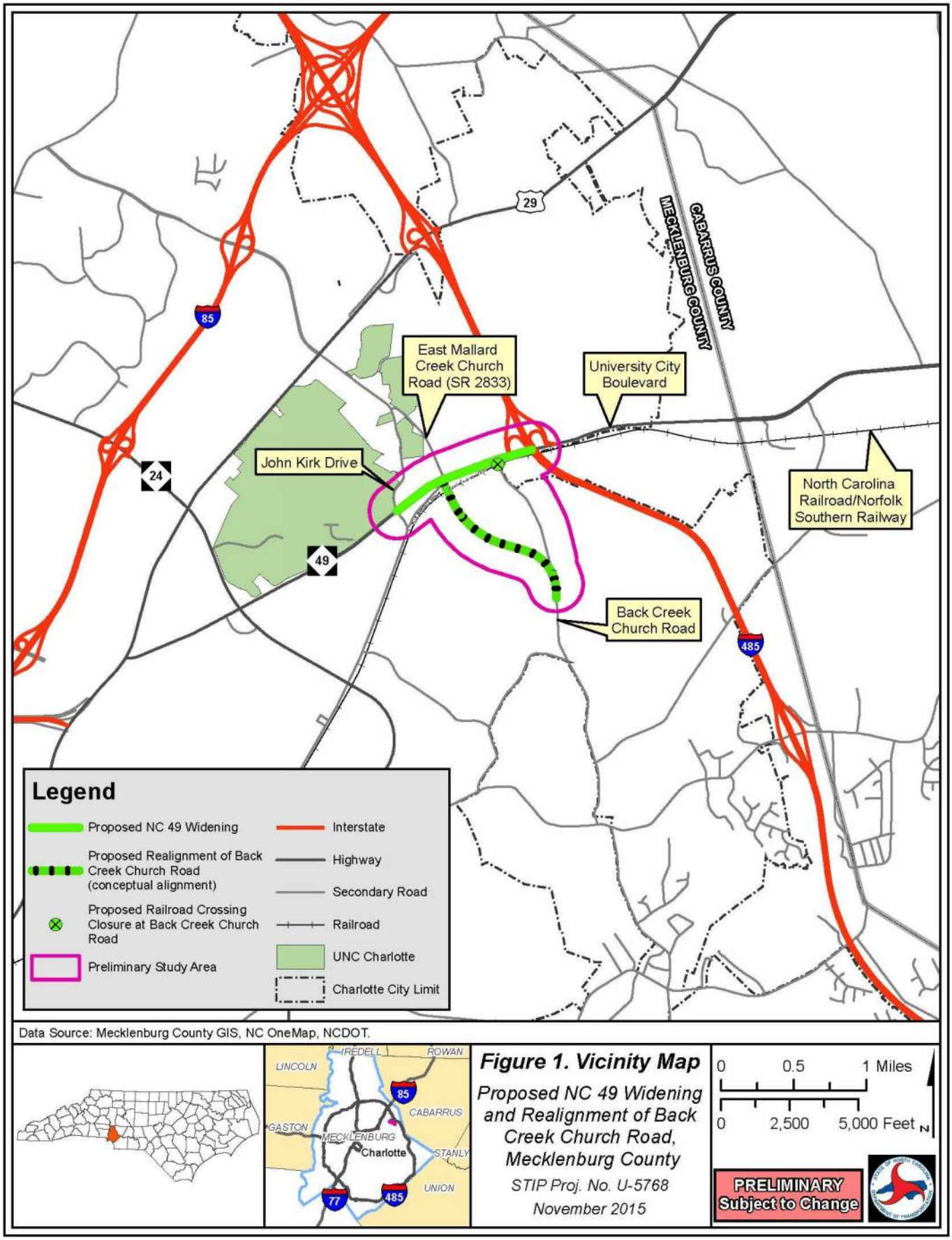
Historic Architecture & Landscapes: A screening review of HPOWEB revealed eight previously identified historic properties (seven "surveyed only" and one "surveyed only, gone") within the preliminary study area. A field visit by HNTB staff concluded that four "surveyed only" properties were no longer present. The "surveyed only, gone" property appears to be accurate. One "surveyed only" property (Back Creek Associate Reformed Presbyterian Church, MK1255) was determined by SHPO to be ineligible for listing on the National Register of Historic Places (NRHP) in correspondence for STIP #P-3814A (December 14, 2007 letter attached). The Back Creek Associate Reformed Presbyterian Church was also found to be not eligible for the NRHP in 2009 in support of STIP #P-5208 (see excerpted portion of the December 11, 2009 Concurrence Form attached). A photo from a 7/30/2015 field visit by HNTB staff is included in the attachments.

The NC 49 corridor is urbanized featuring primarily commercial and multi-family residential development.

PLEASE NOTE: In addition to the items checked in "Attachments" above, the following information has been included:

- Figure 3 (Environmental Features)
- December 14, 2007 letter from SHPO regarding historic structures – specifically the Back Creek Presbyterian Church and Cemetery – in the vicinity of STIP #P-3814A ("Traffic separation study for crossing improvements, Back Creek Church Road [SR 2827], Crossing # 715 339U, Charlotte, Mecklenburg County, ER 07-2308").
- December 11, 2009 "Concurrence Form for Properties Not Eligible for the National Register of Historic Places," in support of the Proposed Construction of Additional Track Along the North Carolina Railroad/Norfolk Southern Railway From Haydock (South of Concord) to Junker (Northeast of Charlotte), Cabarrus and Mecklenburg Counties, STIP # P-5208 (Formerly P-3414N). More information was requested for the Back Creek Associated Reformed Presbyterian Church. *Only the Concurrence Form pages addressing the Back Creek Associated Reformed Presbyterian Church are included.*
- June 23, 2010 "Concurrence Form for Properties Not Eligible for the National Register of Historic Places," in support of the Proposed Construction of Additional Track Along the North Carolina Railroad/Norfolk Southern Railway From Haydock (South of Concord) to Junker (Northeast of Charlotte), Cabarrus and Mecklenburg Counties, STIP # P-5208 (Formerly P-3414N).

SUBMIT THIS FORM AND ATTACHMENTS ELECTRONICALLY TO:
PAtracker@ncdot.gov


East Mallard Creek Church Road (SR 2833)
University City Boulevard
John Kirk Drive
North Carolina Railroad/Norfolk Southern Railway
Back Creek Church Road
MECKLENBURG COUNTY
CABARRUS COUNTY
29
85
24
49
485
Legend
Proposed NC 49 Widening
Proposed Realignment of Back Creek Church Road (conceptual alignment)
Proposed Railroad Crossing Closure at Back Creek Church Road
Preliminary Study Area
Interstate
Highway
Secondary Road
Railroad
UNC Charlotte
Charlotte City Limit
Data Source: Mecklenburg County GIS, NC OneMap, NCDOT.
IREDELL
ROWAN
LINCOLN
CABARRUS
GASTON
MECKLENBURG
Charlotte
STANLY
UNION
77
Figure 1. Vicinity Map
Proposed NC 49 Widening and Realignment of Back Creek Church Road, Mecklenburg County
STIP Proj. No. U-5768
November 2015
0 0.5 1 Miles
0 2,500 5,000 Feet
N
PRELIMINARY
Subject to Change

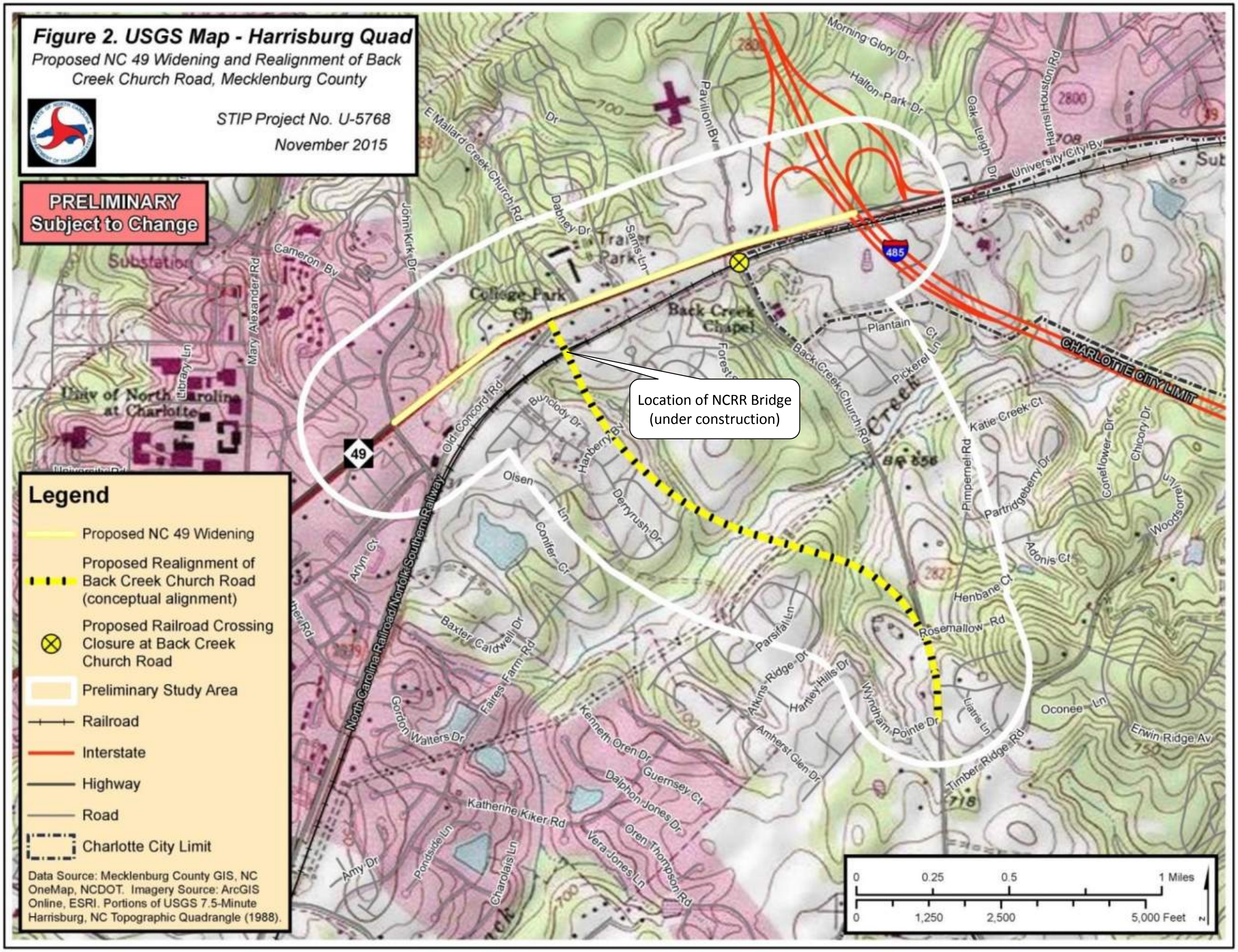


Figure 2. USGS Map - Harrisburg Quad
Proposed NC 49 Widening and Realignment of Back Creek Church Road, Mecklenburg County
STIP Project No. U-5768
November 2015
PRELIMINARY
Subject to Change
Location of NCRR Bridge (under construction)
Legend
Proposed NC 49 Widening
Proposed Realignment of Back Creek Church Road (conceptual alignment)
Proposed Railroad Crossing Closure at Back Creek Church Road
Preliminary Study Area
Railroad
Interstate
Highway
Road
Charlotte City Limit
Data Source: Mecklenburg County GIS, NC OneMap, NCDOT. Imagery Source: ArcGIS Online, ESRI. Portions of USGS 7.5-Minute Harrisburg, NC Topographic Quadrangle (1988).
0 0.25 0.5 1 Miles
0 1,250 2,500 5,000 Feet
CHARLOTTE CITY LIMIT
485
49

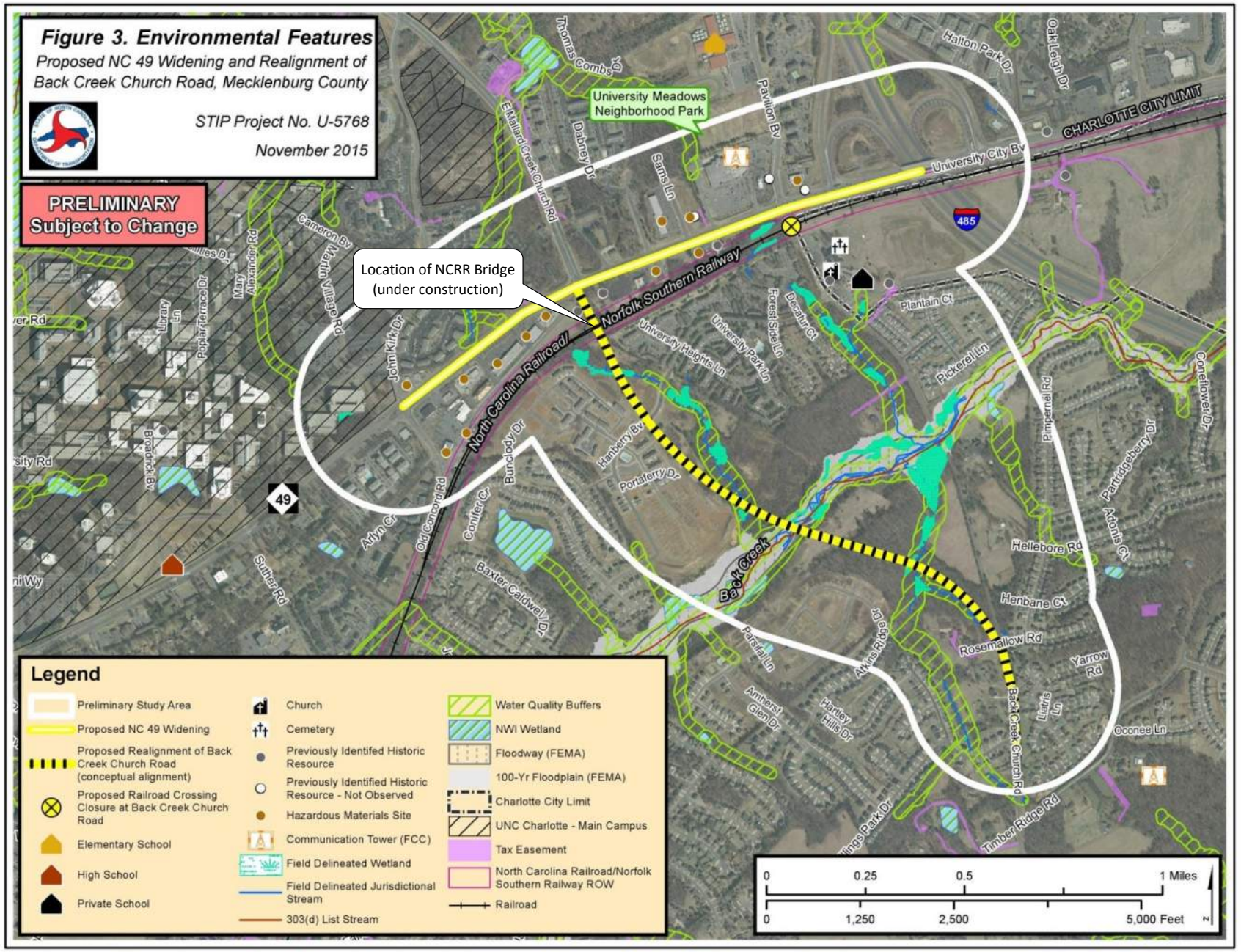


Figure 3. Environmental Features
Proposed NC 49 Widening and Realignment of Back Creek Church Road, Mecklenburg County
STIP Project No. U-5768
November 2015
PRELIMINARY
Subject to Change
Location of NCRR Bridge (under construction)
University Meadows Neighborhood Park
CHARLOTTE CITY LIMIT
Norfolk Southern Railway
North Carolina Railroad/
Back Creek
Legend
Preliminary Study Area
Proposed NC 49 Widening
Proposed Realignment of Back Creek Church Road (conceptual alignment)
Proposed Railroad Crossing Closure at Back Creek Church Road
Elementary School
High School
Private School
Church
Cemetery
Previously Identifed Historic Resource
Previously Identified Historic Resource - Not Observed
Hazardous Materials Site
Communication Tower (FCC)
Field Delineated Wetland
Field Delineated Jurisdictional Stream
303(d) List Stream
Water Quality Buffers
NWI Wetland
Floodway (FEMA)
100-Yr Floodplain (FEMA)
Charlotte City Limit
UNC Charlotte - Main Campus
Tax Easement
North Carolina Railroad/Norfolk Southern Railway ROW
Railroad
0 0.25 0.5 1 Miles
0 1,250 2,500 5,000 Feet

NC 49 at John Kirk Drive (NC 49 is traversing the photograph horizontally). (July 30, 2015)

NC 49 near John Kirk Drive, facing northeast. (July 30, 2015)

East Mallard Creek Church Road and NC 49 intersection (NC 49 is traversing the photograph horizontally). The proposed realignment of Back Creek Church Road would continue through intersection to south (behind photographer). (July 30, 2015)

Back Creek Church Road/Pavilion Boulevard and NC 49 intersection. (July 30, 2015)

View of the NCRR bridge under construction, facing east. The existing tracks are located on the south side (right) of construction activity. (July 30, 2015)

View northwest of the proposed corridor for the realigned Back Creek Church Road from Hanberry Boulevard. (July 30, 2015)

View southwest of the proposed corridor for the realigned Back Creek Church Road from Hanberry Boulevard. (July 30, 2015)

Back Creek Church Road at-grade railroad crossing; NC 49 parallels the north side of the NCRR corridor. (July 30, 2015)

Back Creek Presbyterian Church. (July 30, 2015)

Back Creek Presbyterian Church Cemetery. (July 30, 2015)

RECEIVED DEC 27 2007

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

December 14, 2007

Mark Reep
KO & Associates, PC
5121 Kingdom Way Suite 100
Raleigh, NC 27607

RE: Traffic separation study for crossing improvements, Back Creek Church Road (SR 2827), Cossing # 715 339U, Charlotte, Mecklenburg County, ER 07-2308

Dear Mr. Reep: Mark

Thank you for your letter of October 2, 2007. We apologize for our delayed response.

We have checked our maps and files and determined that Back Creek Presbyterian Church and Cemetery (MK 1255) are located near the project's area of potential effects. However, it appears that the original church has be remodeled and received recent additions that are not in keeping with the historic character of the early church. Thus, we do not believe the church property is not eligible for listing in the National Register of Historic Places and that no historic structures will be affected by the undertaking.

There are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Renee G-E

Peter Sandbeck

Location: 109 East Jones Street, Raleigh NC 27601 **Mailing Address**: 4617 Mail Service Center, Raleigh NC 27699-4617 **Telephone/Fax**: (919) 807-6570/807-6599

Federal Aid # *TIP #* P-3414N *County*: Mecklenburg/Cabarrus

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replacement of a second track between Heydock, south of Concord, to Junker, north of Charlotte, for a project length of 12.2 miles.

On 11 December 2009, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
- ☐ Federal Highway Administration (FHWA)
- ☒ North Carolina State Historic Preservation Office (HPO)
- ☐ Other

Reviewed the subject project at historic architectural resources photograph review session/consultation and

All parties present agreed

- ☐ There are no properties over fifty years old within the project's Area of Potential Effects (APE).
- ☒ There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's APE.
- ☐ There are properties over fifty years old within the project's APE, but based on the historical information available and the photographs of each property, the properties identified as 1; 5-7; 11; 13; 17-36 are considered not eligible for the National Register and no further evaluation of them is necessary. Photographs of these properties are attached.
- ☐ There are no National Register-listed or Study Listed properties within the project's APE.
- ☐ All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- ☒ More information is requested on properties 2-4 (NEWELL); 8; 9-10; 12, 14-16 (HARRISBURG)

Signed:

Courtney Foley — 11 DECEMBER 2009

Representative, NCDOT — Date

FHWA, for the Division Administrator, or other Federal Agency — Date

Representative, HPO — Date

Renee Gledhill-Earley — 12.11.09

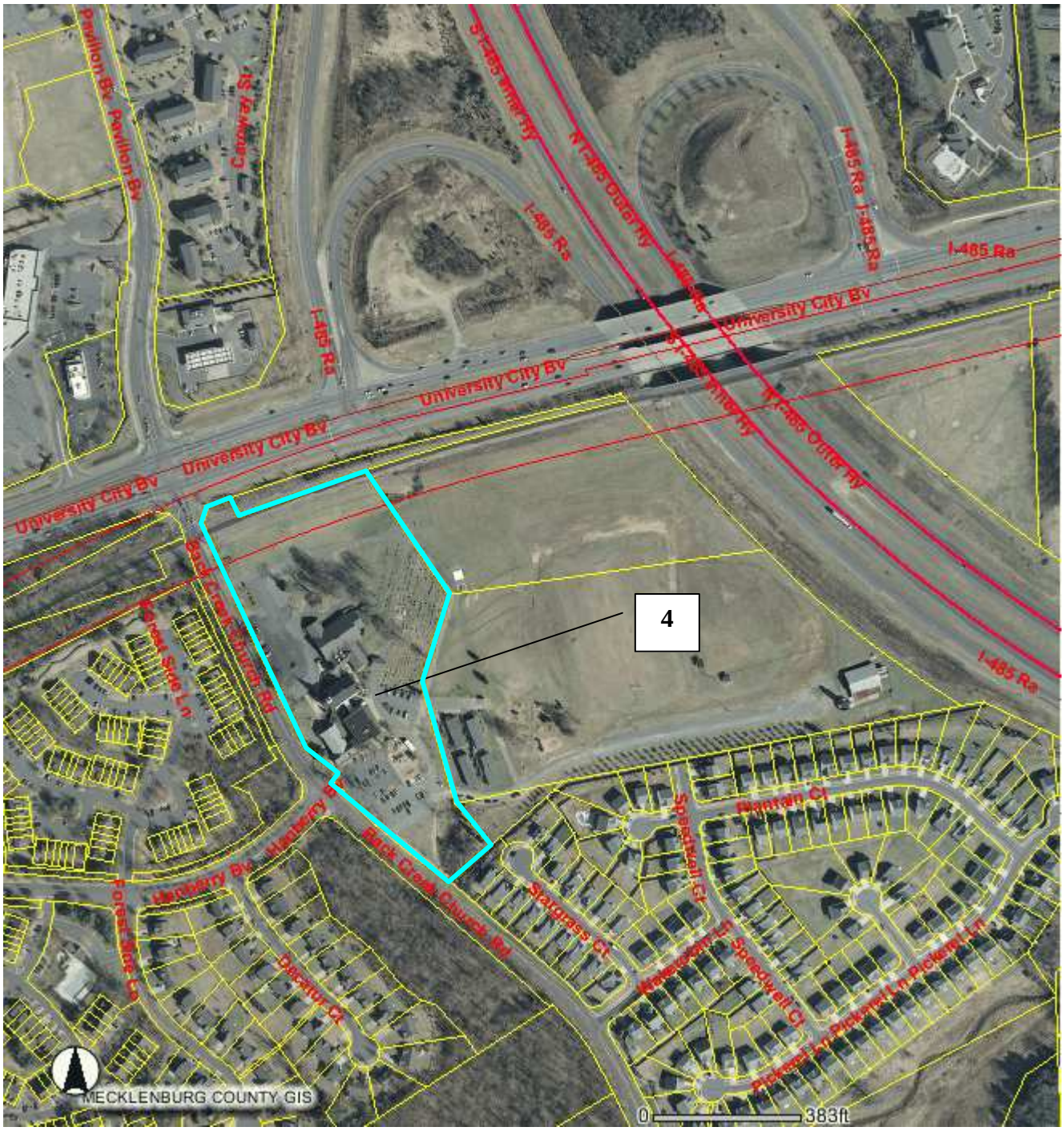
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

3. 8508 Old Concord Road
   Mecklenburg County PIN: 10502116

4. Back Creek Associate Reformed Presbyterian Church
   1821 Back Creek Church Road
   Mecklenburg County PIN: 05113105

Property 4: Back Creek ARP Church



Federal Aid # *TIP #* P-5208 *County*: Mecklenburg/Cabarrus

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replacement of a second track between Heydock, south of Concord, to Junker, north of Charlotte, for a project length of 12.2 miles – additional study area for crossing, road improvements at Hickory Ridge Road.

On 23 June 2010, representatives of the

☒ North Carolina Department of Transportation (NCDOT)
☐ Federal Highway Administration (FHWA)
☒ North Carolina State Historic Preservation Office (HPO)
☐ Other

Reviewed the subject project at historic architectural resources photograph review session/consultation and

All parties present agreed

☐ There are no properties over fifty years old within the project's Area of Potential Effects (APE).

☒ There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's APE.

☒ There are properties over fifty years old within the project's APE, but based on the historical information available and the photographs of each property, the properties identified as 26-32 are considered not eligible for the National Register and no further evaluation of them is necessary. Photographs of these properties are attached.

☒ There are no National Register-listed or Study Listed properties within the project's APE.

☒ All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

☐ More information is requested on properties _____.

Signed:

Representative, NCDOT — Date: 23 JUNE 2010

FHWA, for the Division Administrator, or other Federal Agency — Date

Representative, HPO — Date

Renee Gledhill-Earley — Date: 6.23.10

State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

Project Tracking No.:

15-11-0031

NO ARCHAEOLOGICAL SURVEY REQUIRED FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.

PROJECT INFORMATION

Project No:	**U-5768 REVISED**	*County:*	**Mecklenburg**
WBS No:	**50181.1.R1**	*Document:*	**Environmental Assessment**
F.A. No:	**N/A**	*Funding:*	☒ State ☐ Federal

Federal Permit Required? ☒ Yes ☐ No *Permit Type:* **Section 404 Individual**

Project Description: The NCDOT proposes to: 1) widen NC 49 to a multi-lane, median-divided roadway between John Kirk Drive and I-485, a distance of about 1 mile, 2) realign Back Creek Church Road on new location to the NC 49/Mallard Creek Church Road intersection, a distance of about 1.3 miles, and 3) close the existing at-grade railroad crossing at Back Creek Church Road and NC 49. Since LEDPA has now been chosen and Preliminary Design Plans are available, a revised Area of Potential Effects (APE) has been generated in order to facilitate environmental planning purposed at this stage. The overall APE for the proposed project now encompasses about 103.3 acres, inclusive of all existing roadways and any modern development. **This PA Form shall serve as an addendum to the previous PA Form and only covers areas that were not reviewed as part of that original request.**

SUMMARY OF CULTURAL RESOURCES REVIEW

Brief description of review activities, results of review, and conclusions:

The State Historic Preservation Office/Office of State Archaeology has previously reviewed the closure of the existing at-grade railroad crossing at Back Creek Church Road and NC 49 (ER 07-2308), and were aware of no known archaeological sites within the proposed project area. Therefore, their office recommended no archaeological investigation to be conducted in connection with the project. That recommendation remains valid for that component of the proposed project. For the two (2) other components, a map review and site file search at the Office of State Archaeology (OSA) was deemed not necessary based on the information compiled for the initial request in 2015. Several archaeological surveys have been conducted within the vicinity of the proposed project including investigations as part of the East Charlotte Outer Loop studies, and as a result of those surveys, at least ten (10) archaeological sites have been recorded within one-half (1/2) mile of the proposed project. Digital copies of HPO's maps (Harrisburg Quadrangle) as well as the HPOWEB GIS Service (http://gis.ncdcr.gov/hpoweb/) were reviewed once more on Friday, August 16, 2019. Although various known historic architectural resources are located along the project corridor, intact archaeological deposits associated with such resources are not anticipated within the footprint of the proposed project. In addition, topographic maps, historic maps (NCMaps website), USDA soil survey maps, and aerial photographs were utilized and inspected to gauge environmental factors that may have contributed to historic or prehistoric settlement within the project limits, and to assess the level of modern, slope, agricultural, hydrological, and other erosive-type disturbances within and surrounding the archaeological APE.

Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:

Although State funds are still to be used for this project, a Federal permit will be required. Temporary and permanent easements as well as additional ROW will be needed. The size and shape of the APE have been drawn in a way to capture any possible ground-disturbing activities associated with the project. At this time, we are in compliance with NC GS 121-12a since there are no eligible (i.e. National Register-listed) archaeological resources located within the project's revised APE that would require our attention. From an environmental perspective, the APE falls within a highly urbanized and residential area and consists of the rolling terrain typical of North Carolina's Southern Piedmont physiographic region. Numerous soil types are present throughout the APE, with most soil conditions (urban/disturbed, eroded, sloped, and somewhat poorly drained) not favorable for preserving intact archaeological sites/resources. Preservation of archaeological materials within these soil type areas is likely to be poor. Small sections of the APE that fall in areas of favorable conditions, however, have either been subjected to modern development or previous archaeological investigations as part of alternative selection studies for the East Charlotte Outer Loop (Biblio# 2616, 2476, and 3607). In addition, areas adjacent to the corridor for the NCRR were considered during studies for track addition from Haydock to Junker (TIP# P-5208 [formerly P-3414N]). Thereafter, any remaining areas that could have been potentially surveyed were also ruled out after reviewing aerials from 1993, 1998, and 2015, which revealed a significant amount of erosion and development. As part of their environmental review, OSA recommended no archaeological surveys for many of the surrounding residential subdivisions (e.g. Faires Farm [ER 90-8449], Back Creek Forest [ER 93-7262], Back Creek II, and Arbor Ridge), stating that the chances of significant archaeological sites being found were low. Based on the presence of urban/disturbed/eroded/ sloped/somewhat poorly drained soils and the fact that a large portion of the APE was previously surveyed, it is believed that the current APE, as depicted, is unlikely to contain intact and significant archaeological resources. As before, no archaeological survey is required for this project. If design plans change or are made available prior to construction, then additional consultation regarding archaeology will be required. At this time, no further archaeological work is recommended. If archaeological materials are uncovered during project activities, then such resources will be dealt with according to the procedures set forth for "unanticipated discoveries," to include notification of NCDOT's Archaeology Group.

**This project falls within a North Carolina County in which the following federally recognized Tribe(s) has expressed an interest: 1) Cherokee Nation of Oklahoma and 2) Catawba Indian Nation. It is recommended that you contact each federal agency involved with your project to determine their Section 106 Tribal consultation requirements. Please know that no State-recognized tribes have expressed interest in activities within this county.

SUPPORT DOCUMENTATION

See attached: ☐ Map(s) ☐ Previous Survey Info ☐ Photos ☐ Correspondence
☐ Photocopy of County Survey Notes Other:

FINDING BY NCDOT ARCHAEOLOGIST

NO ARCHAEOLOGY SURVEY REQUIRED

Paul J Mohler

August 16, 2019

NCDOT ARCHAEOLOGIST **Date**

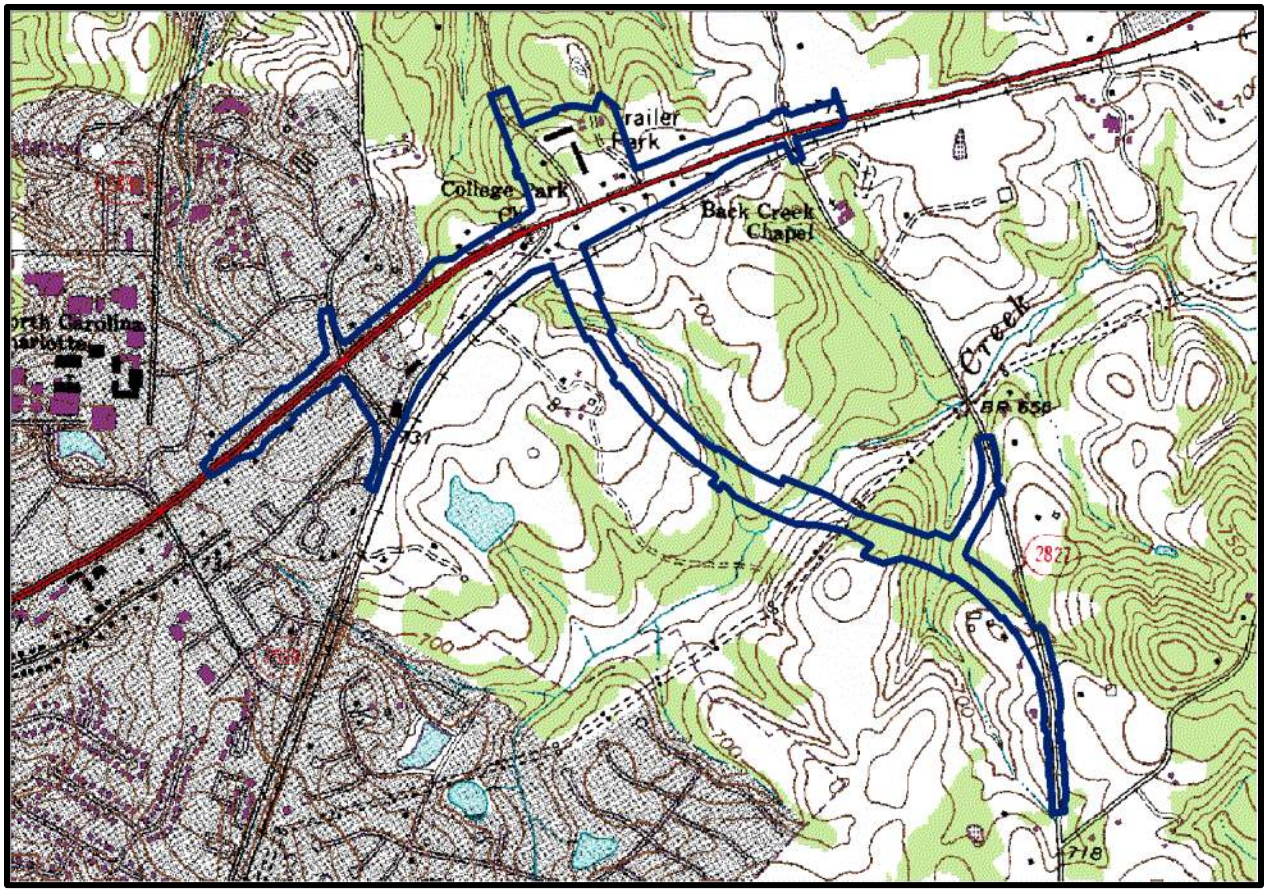
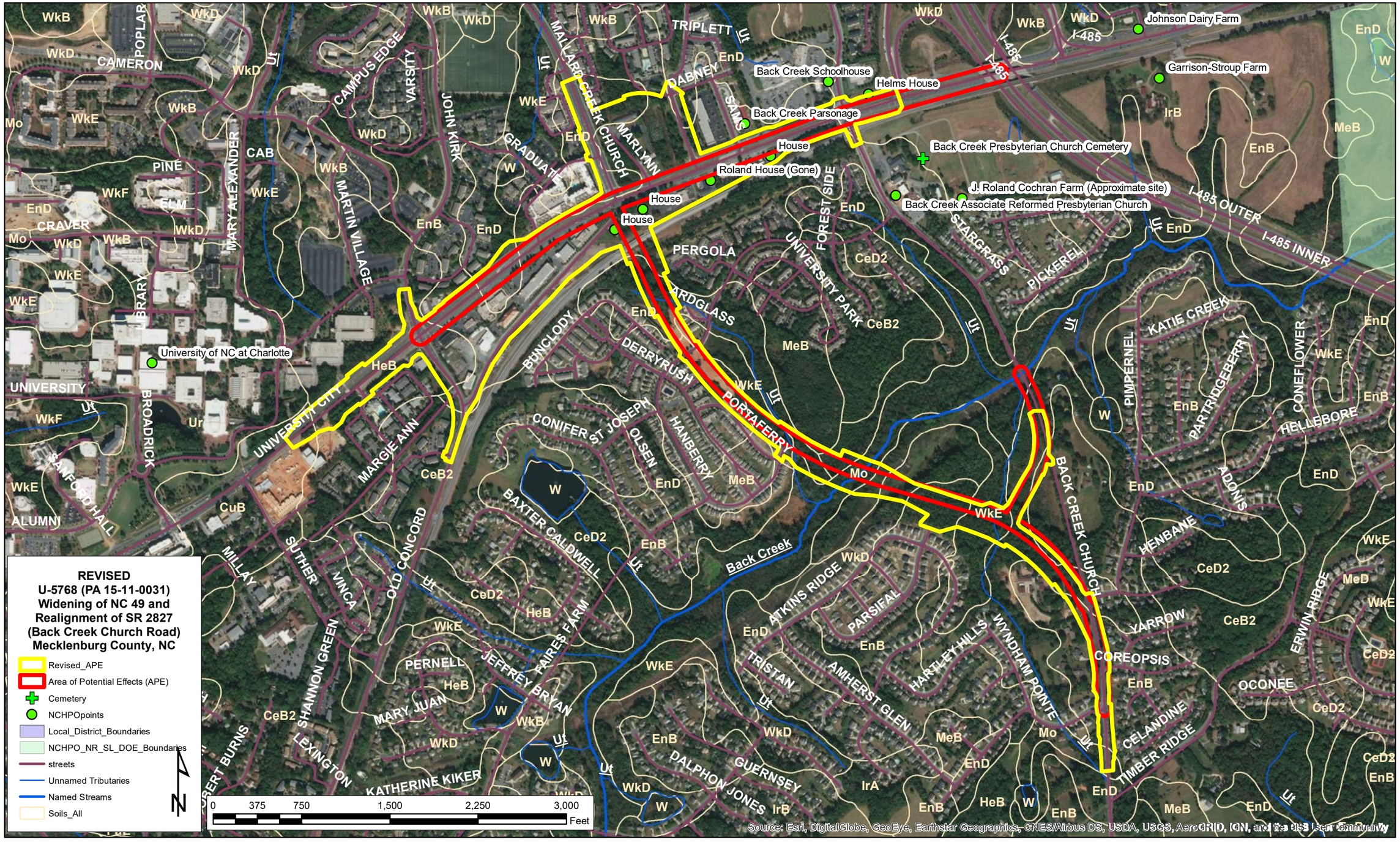


Figure 1: Harrisburg, NC (USGS 1993).


REVISED
U-5768 (PA 15-11-0031)
Widening of NC 49 and
Realignment of SR 2827
(Back Creek Church Road)
Mecklenburg County, NC
Revised_APE
Area of Potential Effects (APE)
Cemetery
NCHPOpoints
Local_District_Boundaries
NCHPO_NR_SL_DOE_Boundaries
streets
Unnamed Tributaries
Named Streams
Soils_All
N
0 375 750 1,500 2,250 3,000
Feet
Johnson Dairy Farm
Garrison-Stroup Farm
Back Creek Schoolhouse
Helms House
Back Creek Parsonage
Back Creek Presbyterian Church Cemetery
House
Roland House (Gone)
J. Roland Cochran Farm (Approximate site)
Back Creek Associate Reformed Presbyterian Church
House
House
University of NC at Charlotte
I-485
I-485 OUTER
I-485 INNER
CAMERON
POPLAR
CAMPUS EDGE
VARSITY
JOHN KIRK
MALLARD CREEK CHURCH
MARLYNN
DABNEY
SAMS
GRADUATE
MARY ALEXANDER
CAB
PINE
ELM
CRAVER
MARTIN VILLAGE
LIBRARY
PERGOLA
FOREST SIDE
UNIVERSITY PARK
STARGRASS
PICKEREL
ARDGLASS
BUNCLODY
DERRYRUSH
PORTAFERRY
UNIVERSITY CITY
MARGIE ANN
BROADRICK
SANFORD HALL
ALUMNI
CONIFER ST JOSEPH
OLSEN
HANBERRY
BACK CREEK CHURCH
KATIE CREEK
PIMPERNEL
PARTRIDGEBERRY
CONEFLOWER
HELLEBORE
ADONIS
HENBANE
YARROW
COREOPSIS
OCONEE
CELANDINE
TIMBER RIDGE
ERWIN RIDGE
ATKINS RIDGE
PARSIFAL
TRISTAN
AMHERST GLEN
HARTLEY HILLS
WYNDHAM POINTE
Back Creek
BAXTER CALDWELL
OLD CONCORD
MILLAY
SUTHER
VINCA
SHANNON GREEN
FAIRES FARM
JEFFREY BRYAN
PERNELL
MARY JUAN
LEXINGTON
ROBERT BURNS
KATHERINE KIKER
DALPHON JONES
GUERNSEY
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Patrick, Vanessa E

From:	Patrick, Vanessa E
Sent:	Tuesday, July 30, 2019 10:56 AM
To:	kgilland@hntb.com
Cc:	Stroud, Wilson; Hart, Teresa A; Furr, Mary Pope
Subject:	U-5768, Mecklenburg County -- Historic Architecture
Attachments:	U-5768MeckExpStudyArea.pdf

Hi Ken: Mary Pope has passed along your e-mail describing the study area expansion for the U-5768 project in Mecklenburg County. I've reviewed the new area (attached) and found no additional architectural resources of likely or established significance. I've added a copy of our original review form, completed in May 2016, to the Connect NCDOT site and will add a copy of this e-mail as well. As currently defined, the project may be considered in compliance with both GS 121-12(a) and Section 106 for historic architecture.

Thank you for alerting us to the study area expansion. Should questions arise or if I can help in any way, please let me know. Vanessa

Vanessa E. Patrick
Architectural Historian
Environmental Analysis Unit
North Carolina Department of Transportation

919.707.6082 office
919.880.7600 mobile
vepatrick@ncdot.gov

1020 Birch Ridge Drive, Building A
1598 Mail Service Center
Raleigh, NC 27699-1598

FIGURE 4
Revised Study Area
NCDOT STIP U-5768
N.C. 49 Widening and Back Creek Church Road Realignment
July 2019

Sources: NCDOT, NCOneMap, City of Charlotte, Mecklenburg Co.
Credit: HNTB 2019.

Appendix C: Public Involvement

U-5768

Widen N.C. 49 and Realign Back Creek Church Road

PUBLIC MEETING

Mecklenburg County

PUBLIC MEETING

Tuesday, April 23, 2018
4 p.m.—7 p.m.

UNC Charlotte Cone Center (Lucas Room)
9025 University Rd. Charlotte

The N.C. Department of Transportation has begun studies for Project Number U-5768 in Mecklenburg County. A public meeting to present information on the project will be held on April 23rd. This project proposes to widen N.C. 49 from John Kirk Drive to I-485, realign Back Creek Church Road, and close the existing Back Creek Church Road at-grade crossing of the NCRR.

You are invited to attend the public meeting for this project during the open house hours. NCDOT representatives will display maps of the proposed alternatives, provide information on the project, answer questions, and receive comments. No formal presentation will be made. You can also submit comments to nc-49-widening-charlotte@publicinput.com through Tuesday, May 7, 2019.

A map of the proposed project and additional information can be viewed on the project website: https://publicinput.com/nc-49-widening-charlotte

For additional information, please contact Wilson Stroud, NCDOT Central Project Management Unit, at (919) 707-6045 or wstroud@ncdot.gov.

NCDOT will provide auxiliary aids and services under the Americans with Disabilities Act for disabled persons who wish to participate in this workshop. Anyone requiring special services should contact Ms. Diane Wilson at (919) 707-6073 or pdwilson1@ncdot.gov as early as possible so that arrangements can be made.

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina

North Carolina Department of Transportation
EAU—Public Involvement
Attn: Diane Wilson
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Aquellas personas que no hablan inglés, o tienen limitaciones para leer, hablar o entender inglés, Podrían recibir servicios de interpretación si los solicitan antes de la reunión llamando al 1-800-481-6494.

STIP Project No. U-5768

N.C. 49 Widening & Back Creek Church Road Realignment

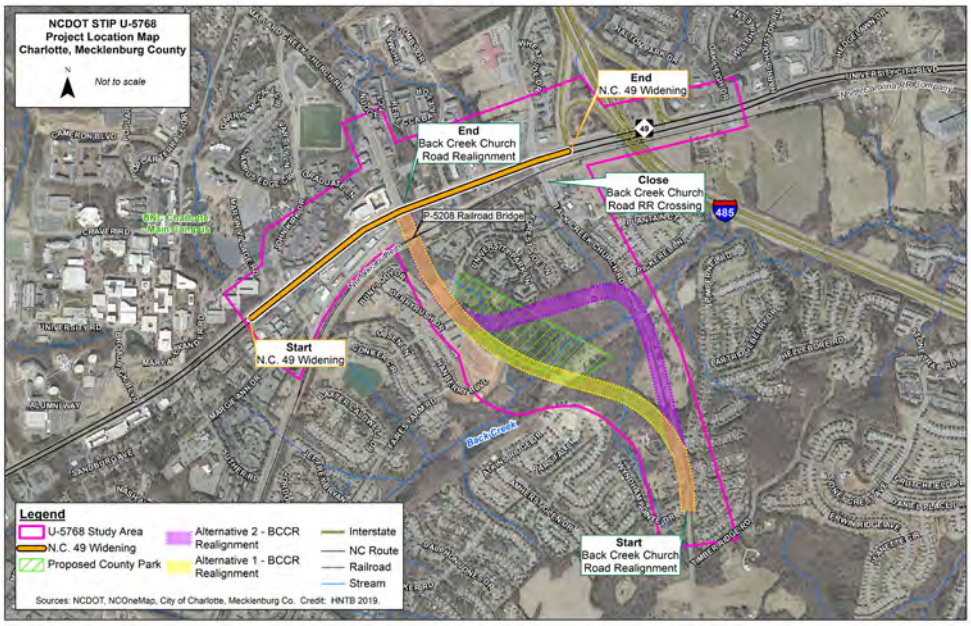
Charlotte, Mecklenburg County, North Carolina

April 23, 2019

Meeting Purpose

Public involvement is an important part of the planning process. The N.C. Department of Transportation (NCDOT) encourages citizen engagement on transportation projects and will consider your suggestions and address your concerns. Today's meeting is another important step in NCDOT's efforts to keep you, the public, involved in the planning and development of the project. This meeting is being held to obtain your input on the design of the project.

You may provide comments on the attached comment sheet or by email. The public comment period ends Tuesday, May 7, 2019.



Project Description

The N.C. 49 (University City Boulevard) Widening and Back Creek Church Road Realignment project is a joint project between the NCDOT and the city of Charlotte's Department of Transportation. NCDOT is funding the N.C. 49 widening, while the city is paying for the relocation of Back Creek Church Road.

The project would widen 1.2 miles of N.C. 49 to six lanes between John Kirk Drive and I-485. It also would realign Back Creek Church Road onto new location to tie into the existing N.C. 49 and Mallard Creek Church Road intersection. The existing intersection of N.C. 49 and Back Creek Church Road would be closed, just south of the North Carolina Railroad/Norfolk-Southern (NCRR/NS) tracks. The project would also improve bicycle and pedestrian connectivity, including two additional signalized bicycle and pedestrian crossings of N.C. 49 for a total of six crossings within the project limits. Continuous 12-foot multi-use paths are proposed along both sides of N.C. 49 within the project limits, and are contingent on a Municipal Agreement with the City of Charlotte.

Project Purpose

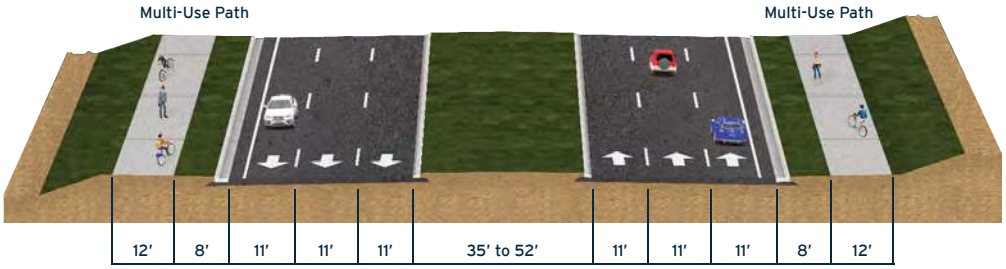
The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on N.C. 49. Other objectives are to improve safety and enhance train and vehicle operations, maintain connectivity, and safely accommodate multi-modal uses of the corridor.

The project would improve the safety of drivers and pedestrians who use and cross N.C. 49 by using an innovative design called Reduced Conflict Intersections (RCIs). To accommodate pedestrians and bicyclists, a 12-foot multi-use path is proposed to be constructed on both sides of N.C. 49 and along both sides of the proposed Back Creek Church Road realignment.

Widening N.C. 49 (University City Boulevard)

N.C. 49 would be widened to six lanes from its present four lanes, and a raised median would be constructed along the corridor in the project area. At the John Kirk Drive and Pavilion Boulevard intersections with N.C. 49, the median would be extended through the intersection with traffic signals to redirect drivers from the side street to turn right onto N.C. 49. The median is part of a design known as a RCI, because it reduces, by more than half, the number of potential locations where vehicles can collide.

Typical Section - N.C. 49 (University City Boulevard)



Reduced Conflict Intersection – The Right Way to Go Left

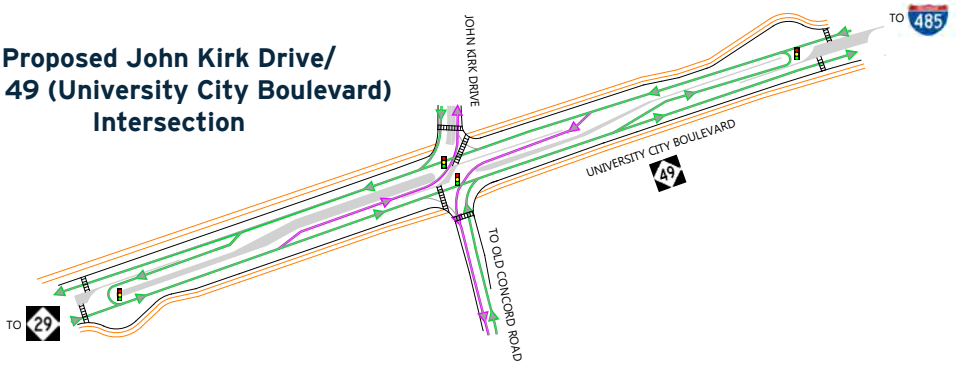
A RCI improves the safety for drivers and pedestrians alike and allows drivers to get to their destinations quicker and more easily.

With an RCI, drivers from the side road simply look left, then turn right to easily enter the flow of traffic. If they want to go the other direction or cross the highway, they turn right, then pull into a lane to make a safe U-turn, which is usually no more than 1,000 feet away. Motorists on the main highway, however, may turn left at major intersections using a concrete median design known as a directional crossover.

NCDOT and the City of Charlotte recommend using RCI when widening N.C. 49 for several reasons:

- Reduces the risk of crashes, particularly the more serious angle, or T-bone, kind
- Improves traffic flow on the main route. By reducing the phasing of the traffic signals and redirecting drivers to turn right, the mainline traffic has more green time and, thus, drivers travel more quickly through the corridor
- Creates more places where pedestrians can safely cross the road
- Enhances the roadway's operational capacity by allowing more traffic volume without increased delays
- Allows for the city or NCDOT to adjust the speed that drivers will follow to progress through signalized intersections without having to stop.

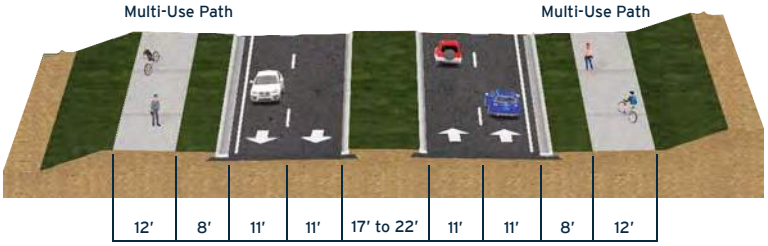
Proposed John Kirk Drive/ N.C. 49 (University City Boulevard) Intersection



Mallard Creek Church Road/Realigned Back Creek Church Road/N.C. 49 Intersection

A modified, signalized intersection with quadrant roadways would be constructed for the Mallard Creek Church Road/ Realigned Back Creek Church Road/N.C. 49 intersection. Through movements would be allowed on N.C. 49 and right turns from N.C. 49 would be allowed to Mallard Creek Church Road and realigned Back Creek Church Road. Left turns to and from N.C. 49 would not be allowed. Two quadrant roadways would be constructed in the northeast and southwest quadrants of the intersection to accommodate left turns from N.C. 49 and left turns from Mallard Creek Church Road and realigned Back Creek Church Road.

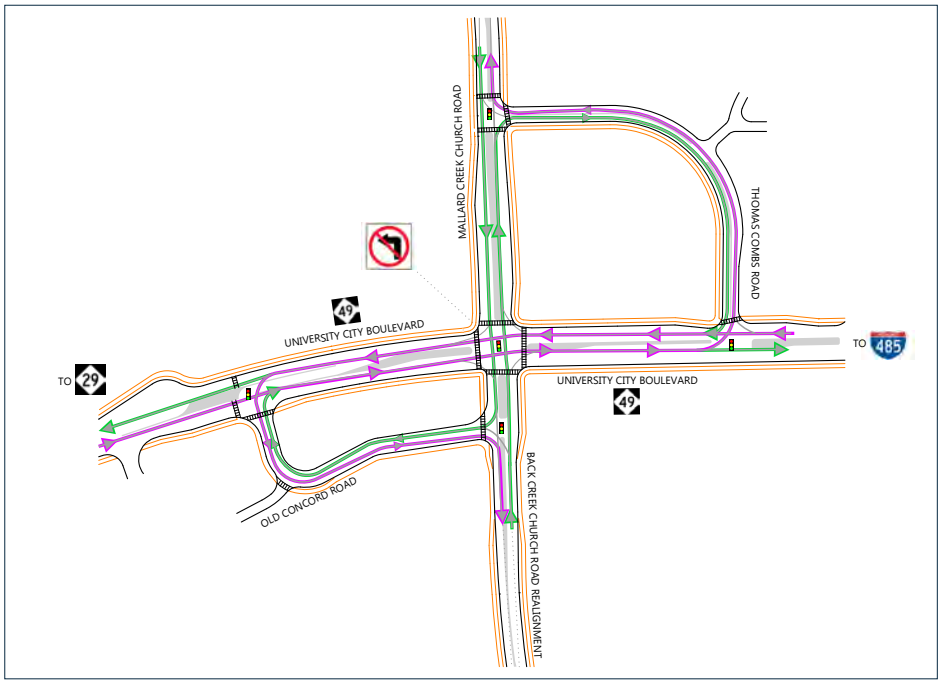
Typical Section - Realigned Back Creek Church Road



Quadrant Roadways

Quadrant roadways are proposed in the northeast and southwest quadrant of the N.C. 49 intersection with Mallard Creek Church Road/Realigned Back Creek Church Road to provide for left turns to N.C. 49. Left turns from N.C. 49 would also be routed through the quadrant roadways. Providing these connections along the two proposed quadrant roadways will reduce delay at the N.C. 49 intersection with Mallard Creek Church Road and realigned Back Creek Church Road, thereby improving traffic flow.

Proposed Mallard Creek Church Road/ Realigned Back Creek Church Road/N.C. 49 Intersection



Back Creek Church Road Realignment

Two alternatives for realigning Back Creek Church Road are being considered:

- **Alternative 1** (Yellow Option, 1 mile of new alignment) would begin just north of Wyndham Pointe Drive, tying into the existing Mallard Creek Church Road intersection with N.C. 49.
- **Alternative 2** (Purple Option, 0.8 mile of new alignment) would begin just north of the bridge over Back Creek and would also tie into the existing Mallard Creek Church Road intersection with N.C. 49.

Under both alternatives, realigned Back Creek Church Road would travel under the NCRR/NS tracks via the railroad bridge south of N.C. 49 constructed as part of NCDOT Project P-5208 (see additional information below).

Realigned Back Creek Church Road is a portion of CDOT's planned "Eastern Circumferential Road" (ECR). The ECR is envisioned as a connection between the UNC-Charlotte/U.S. 29 North area and the U.S. 74 East (Independence Boulevard)/Sardis Road North intersection in Matthews to serve as a lower speed thoroughfare, offering an alternative north-south local connection to the I-485 corridor in east Mecklenburg County.

Closure of Existing At-grade Rail Crossing on Existing Back Creek Church Road

Closing the existing Back Creek Church Road at-grade crossing with the NCRR/NS tracks near N.C. 49 is an important safety component of the project. Due to the high volume of rail and roadway traffic and the short distance between that crossing and N.C. 49, this is a particularly dangerous crossing – there were seven crashes involving a vehicle and a train at this crossing between 2000 and 2018. Current typical train traffic as reported by Norfolk Southern is 38 trains per day. Train volumes are expected to double in the future.

The realignment of Back Creek Church Road proposed as part of this project will pass under the railroad bridge that was constructed by NCDOT under a separate project (NCDOT Project P-5208), thereby maintaining road network connectivity and enabling vehicular traffic to flow freely under the tracks.

This project will close existing Back Creek Church Road just south of the existing at-grade rail crossing. Removing the existing at-grade crossing will eliminate train and vehicle conflicts at this location, thereby improving safety. Further, the removal of the at-grade crossing will eliminate the need for trains to blow their horns as they approach Back Creek Church Road.

Cost Estimate*

	Estimated Amount
Project Development & Design	$2,000,000
Utilities	$1,300,000
Mitigation	$925,000
Property Acquisition	$1,300,000
Construction Costs	$36,300,000
Total Costs	**$41,825,000**

*Based on NCDOT Draft 2020-2029 STIP.

Schedule*

Milestone	Date
Public Meeting	April 2019
Public Hearing	Summer 2019
Environmental Document	Fall 2019
Right of Way Acquisition	State Fiscal Year 2021
Construction Start	State Fiscal Year 2023
Construction End (planned)	State Fiscal Year 2026

*Preliminary and subject to change.

Project Contacts

Wilson Stroud
NCDOT Project Manager
Project Management Unit

919-707-6045

1582 Mail Service Center
Raleigh N.C., 27699-1582

Keith Bryant, P.E.
Sr. Engineering Project Manager
Charlotte Department of Transportation

980-214-7076

600 E. Fourth Street
Charlotte, N.C. 28202

Ken Gilland
Project Manager
HNTB Corporation,
NCDOT Consultant

919-424-0486

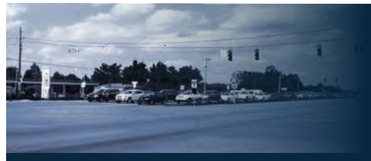
343 E Six Forks Road,
Suite 200,
Raleigh, N.C. 27609

Please visit the project website and fill out the questionnaire!
Publicinput.com/nc-49-widening-charlotte

Email comments may be submitted via:
nc-49-widening-charlotte@publicinput.com

What's Next?

NCDOT will review public input and explore options to incorporate changes and address concerns. Comments will be accepted until Tuesday, May 7, 2019. If you have transportation questions on other projects, call our Customer Service Center toll free at 1-877-DOT-4YOU, or visit the NCDOT website, **www.ncdot.gov**.

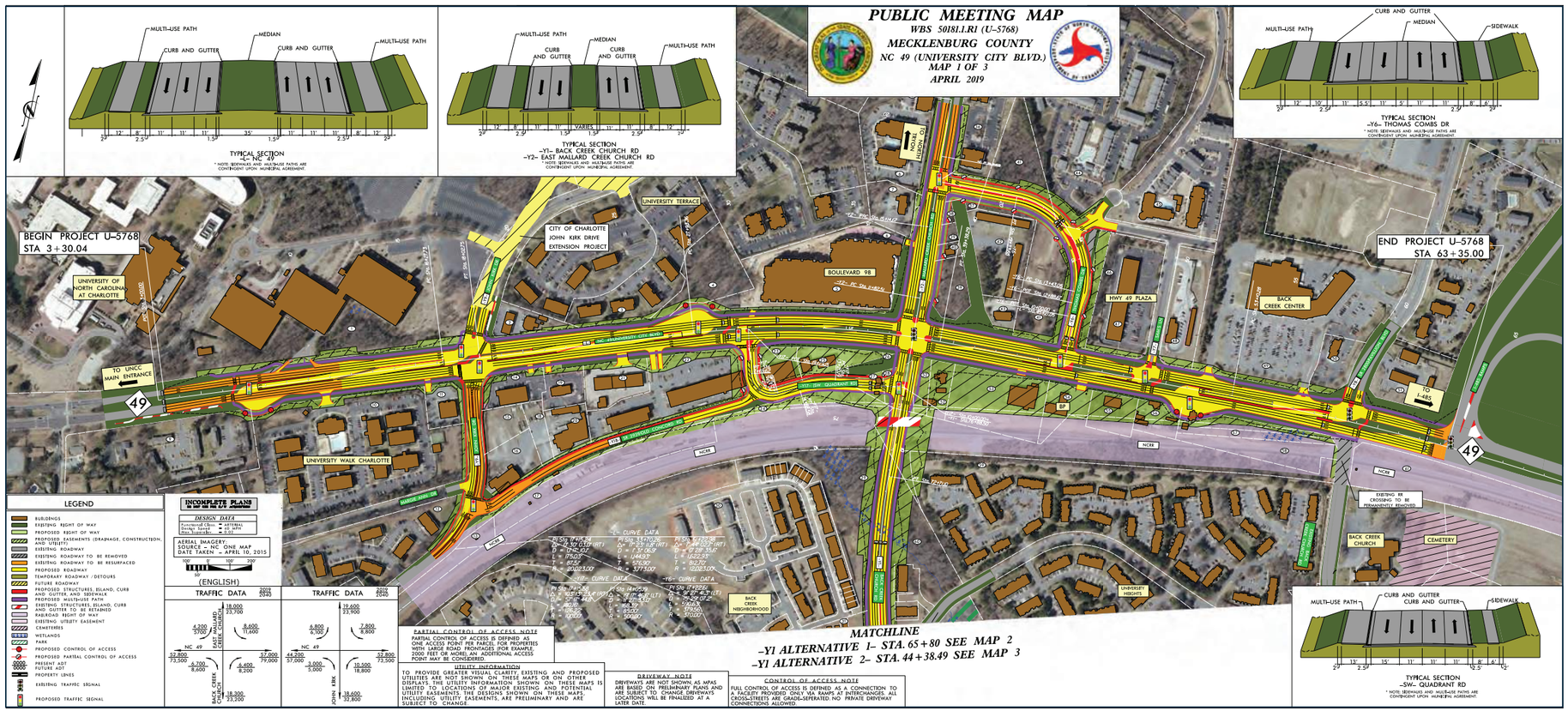


STIP Project No. U-5768

N.C. 49 Widening & Back Creek Church Road Realignment

Charlotte, Mecklenburg County, North Carolina
April 23, 2019

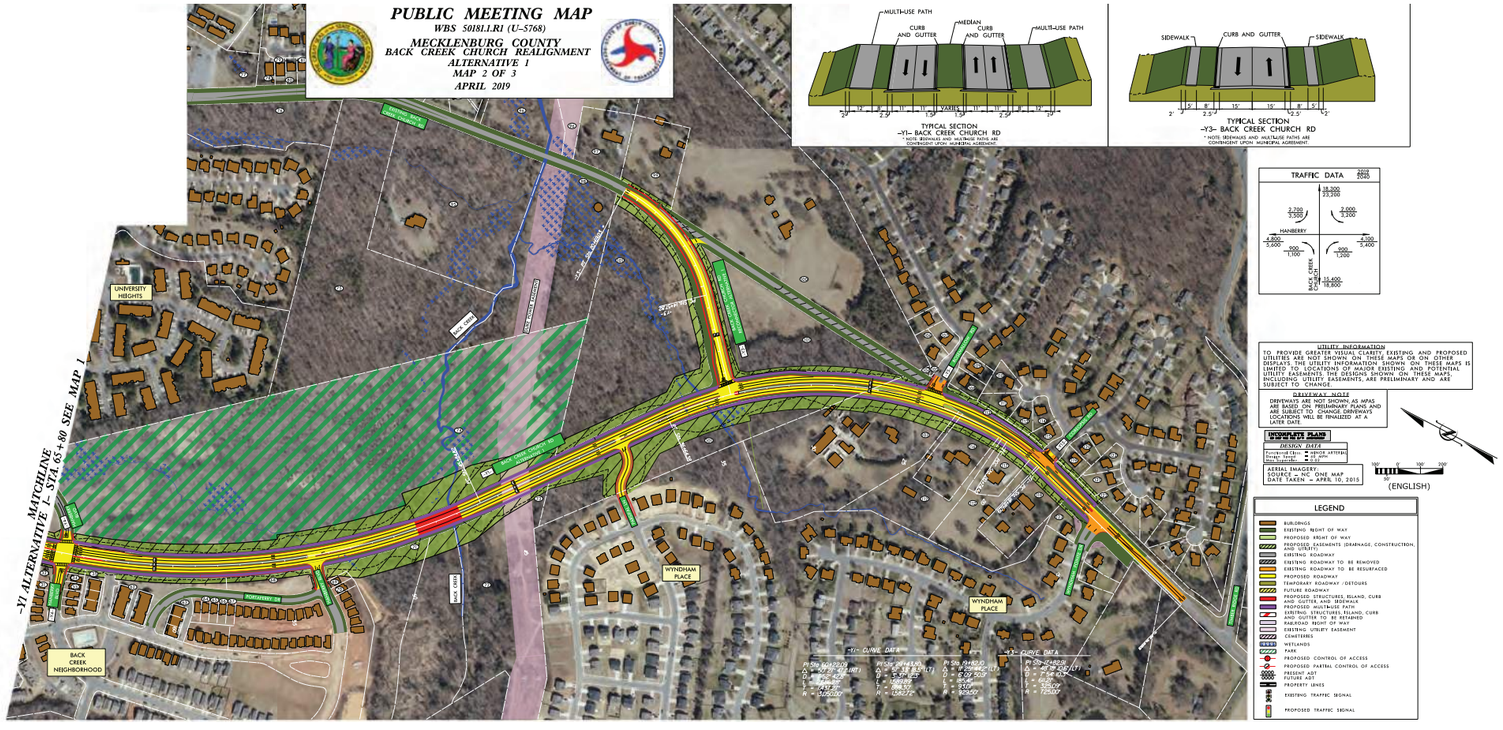
N.C. 49 (University City Boulevard) Widening



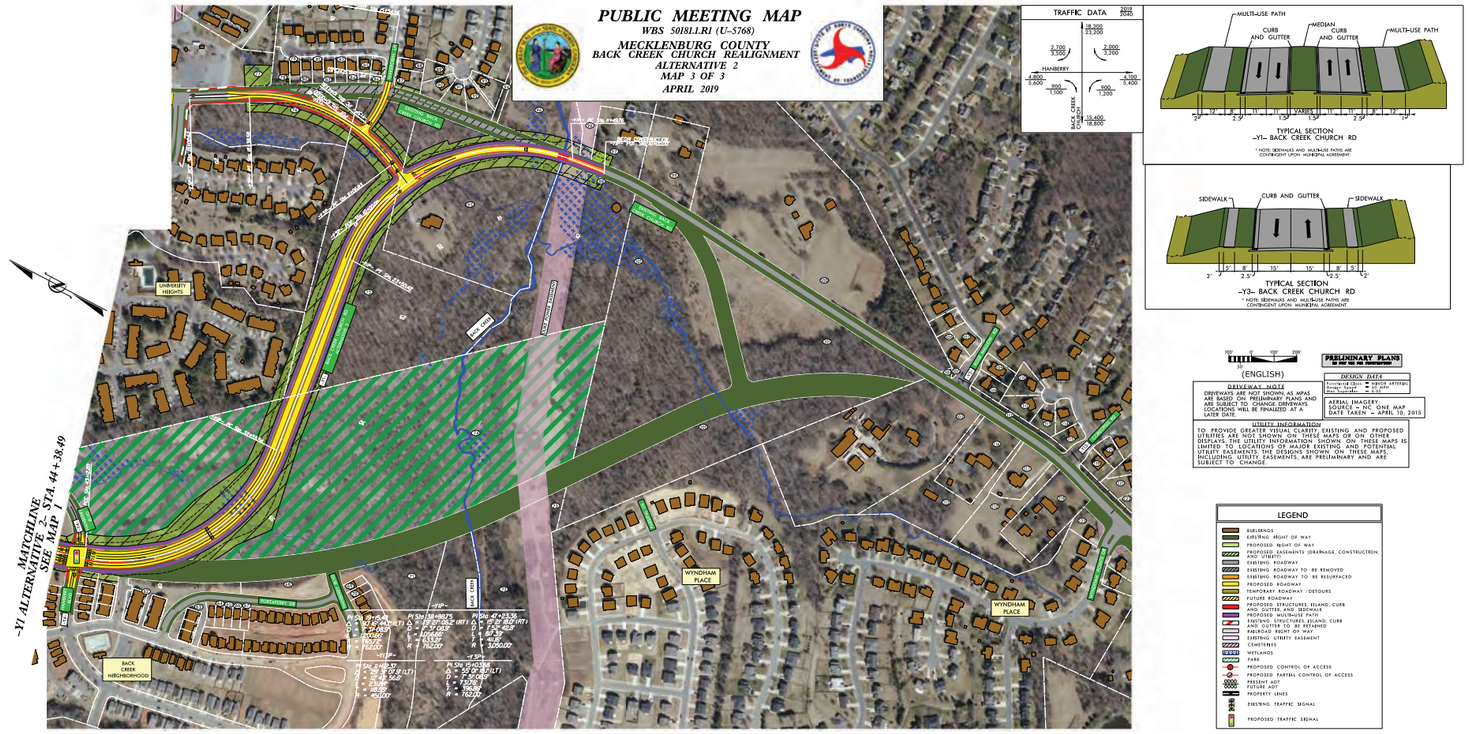
LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- TEMPORARY ROADWAY / DETOURS
- FUTURE ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER, AND SIDEWALK
- PROPOSED MULTI-USE PATH
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE RETAINED
- RAILROAD RIGHT OF WAY
- EXISTING UTILITY EASEMENT
- CEMETERIES
- WETLANDS
- PARK
- PROPOSED CONTROL OF ACCESS
- PROPOSED PARTIAL CONTROL OF ACCESS
- PRESENT ADT / FUTURE ADT
- PROPERTY LINES
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

Alternative 1



Alternative 2



LEGEND

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- PROPERTY LINES
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

Proposed N.C. 49 Widening and Back Creek Church Road Realignment in Mecklenburg County

State Transportation Improvement Program Project No. U-5768

Open House Public Meeting Comment Form

Tuesday, April 23, 2019

The N.C. Department of Transportation appreciates your participation in this process. Your comments are important to the project's success. You may leave this form with us after the workshop or mail it to the address below.

Please submit your comments no later than Tuesday, May 7, 2019.

Please check the box if you would like to be added to the project mailing list. ☐

Name:_____

Mailing Address:_____

E-mail: _____

What best represents your interest in this project?

☐ Resident/Property Owner ☐ Business Owner ☐ Community Group ☐ Other: _____

Of the two alternatives presented for the realignment of Back Creek Church Road, which do you prefer and why? ☐ Alternative 1 ☐ Alternative 2 _____

_____

_____

_____

Other questions or comments you would like to provide to the project team: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Wilson Stroud, CPM
NCDOT Project Manager
1548 Mail Service Center, Raleigh, NC 27699-1582
Telephone: (919) 707-6045
Email comments to: nc-49-widening-charlotte@publicinput.com

NCDOT- Project Management Unit
Attn: Wilson Stroud
1595 Mail Service Center
Raleigh, NC 27699-1595

TITLE VI PUBLIC INVOLVEMENT FORM

*Completing this form is **completely** voluntary. You are not required to provide the information requested in order to participate in this meeting.*

Meeting Type: Public Meeting **Location:** UNC Charlotte Cone Center (Lucas Room), 9025 University Rd., Charlotte, N.C.	**Date:** April 23, 2019
TIP No.: U-5768 **Project Description:** Widen N.C. 49 (University City Boulevard) and Realign Back Creek Church Road	

In accordance with Title VI of the Civil Rights Act of 1964 and related authorities, the N.C. Department of Transportation assures that no person(s) shall be excluded from participation in, denied the benefits of, or subjected to discrimination under any of the Department's programs, policies, or activities, based on their race, color, national origin, disability, age, income, or gender.

Completing this form helps meet our data collection and public involvement obligations under Title VI and NEPA and will improve how we serve the public. Please place the completed form in the designated box on the sign-in table, hand it to an NCDOT official or mail it to the Environmental Analysis Unit, 1598 Mail Service Center, Raleigh, NC 27699-1598.

All forms will remain on file at the NCDOT as part of the public record.

Zip Code: _____

Street Name:
(i.e. Main Street) _____

Total Household Income:

- ☐ Less than $12,000
- ☐ $12,000 – $19,999
- ☐ $20,000 – $30,999
- ☐ $31,000 – $46,999
- ☐ $47,000 – $69,999
- ☐ $70,000 – $93,999
- ☐ $94,000 – $117,999
- ☐ $118,000 or greater

Gender: ☐ Male ☐ Female

Age:

- ☐ Less than 18
- ☐ 18-29
- ☐ 30-44
- ☐ 45-64
- ☐ 65 and older

Have a Disability: ☐ **Yes** ☐ **No**

Race/Ethnicity:

- ☐ White
- ☐ Black/African American
- ☐ Asian
- ☐ American Indian/Alaskan Native
- ☐ Native Hawaiian/Pacific Islander
- ☐ Hispanic/Latino
- ☐ Other (please specify):_____

National Origin: (if born outside the U.S.)

- ☐ Mexican
- ☐ Central American:_____
- ☐ South American:_____
- ☐ European:_____
- ☐ Chinese
- ☐ Vietnamese
- ☐ Korean
- ☐ Other (please specify):_____

How did you hear about this meeting? (newspaper advertisement, flyer, and/or mailing) _____

_____

For more information regarding Title VI or this request, please contact the NCDOT Title VI Nondiscrimination Program at (919) 508-1808 or toll free at 1-800-522-0453, or by email at titleVI@ncdot.gov. Thank you for your participation!

NCDOT - Environmental Analysis Unit
Attn: Diane Wilson
1598 Mail Service Center
Raleigh, NC 27699-1598

STIP Project No. U-5768
N.C. 49 Widening & Back Creek Church Road Realignment
Mecklenburg County, NC

Local Officials Informational Meeting and Public Meeting Summary

September 9, 2019

Project: STIP Project Number U-5768
N.C. 49 Widening and Back Creek Church Road Realignment
Mecklenburg County
WBS # 50181.1.R1

Date: Tuesday, April 23, 2019
Local Officials Informational Meeting 2:30 p.m. to 3:30 p.m.
Public Meeting 4:00 p.m. to 7:00 p.m.

Place: UNC Charlotte Cone Center, 9201 University City Boulevard, Charlotte

Local Officials Informational Meeting

The local officials informational meeting (LOIM) was held from 2:30 p.m. to 3:30 p.m. The meeting was attended by the following officials:

- Jennifer Stafford, City of Charlotte
- Shanna Horton, CMS Transportation
- Greg Phipps, City Council
- Kathryn Horne, UNC Charlotte
- Matthew Grossman, Homeowners Association Representative
- David Farnum, City of Charlotte EMS Strategic Planning Chief

Please add paragraph to list NCDOT and CDOT staff and consultants.

Scott Cole of NCDOT Division 10 introduced the project, and a PowerPoint presentation was presented. Ken Gilland, HNTB, presented project background and design information, and Jim Dunlop of NCDOT Congestion Management discussed the proposed Reduced Conflict Intersection (RCI) treatment proposed for improvements to NC 49 (University City Boulevard). During the meeting, attendees asked about current and projected train traffic along the existing railroad lines, safety issues with the proposed RCI intersection, and pedestrian accommodations proposed for the project. Following the meeting, local officials were invited to speak with members of the project team.

Public Meeting

Following the LOIM, a public meeting was held from 4:00 p.m. to 7:00 p.m. The meeting was open house format and no formal presentation was given. A total of 98 people signed in during this meeting. Sign in sheets and meeting materials are included in Appendix A.

Attendees were invited to:

- Review project handout
- Watch short project visualizations of (1) proposed bicycle and pedestrian accommodations at the intersection of John Kirk Drive and University City Boulevard and (2) Reduced Conflict Intersections (RCIs)
- review project schedule and typical sections
- review maps of the proposed designs
- speak with the project team
- and provide comments on the project.

Twenty-four (24) individuals submitted written comments either during the meeting or by mail or email after the meeting during the comment period, which ended Tuesday May 7, 2019. Some individuals submitted multiple comments during the comment period.

Written comments, included in Appendix B, fell into twenty-one (21) general categories or themes. Note that some commenters touched on more than one theme. Table 1 shows the comment themes and the frequency of comments for each.

Table 1. Comment Themes

	Comment Themes	Frequency of Comments*
1	Pedestrian walkways/bridges	4
2	Concerns about walkability along/across N.C. 49	3
3	Concerns about a sound wall	2
4	Dislike of superstreet design	2
5	Concerns about sidewalks along future greenway	2
6	Concerns about signal light along Back Creek Church Road Greenway	2
7	n/a	2
8	Concerns about changing aesthetic of UNC Charlotte/University City	1
9	Concerns about subdivisions along Back Creek Church Road	1
10	Concerns about speed limit decisions	1
11	Extending project into UNCC	1
12	Questions about left turns	1
13	Likes project	1
14	Concerns about consideration of Back Creek Church Road	1

15	No cost estimates	1
16	Concerns about tying in circumferential road into Back Creek Church Road	1
17	Dislike of closure of Back Creek Church Road	1
18	Concerns about closing Back Creek Church Road during construction	1
19	Concerns about increased traffic on Back Creek Church Road	1
20	Concerns about future plans	1
21	Concerns about safety measures in park area	1

*Due to rounding. the percentages do not sum to 100.

The most frequent comments provided were the concerns regarding the addition of pedestrian walkways and/or bridges along with the concern about the walkability along and across N.C. 49. Questions included the number of crossings, pedestrian crossings for existing Back Creek Church Road to accommodate those wishing to access commercial destinations and schools, and accidents.

Participants were given the opportunity to choose between two alternatives for the proposed Back Creek Church Road realignment. Seventeen (17) participants preferred Alternative 1 and two (2) preferred Alternative 2. One (1) participant did not like either alternative and four (4) either stated no preference or left no comment regarding the two alternatives.

PUBLIC MEETING MAP

WBS 50181.1.R1 (U-5768)

MECKLENBURG COUNTY

BACK CREEK CHURCH REALIGNMENT

ALTERNATIVE 1

MAP 2 OF 3

UPDATED JUNE 2019

PARCEL OWNER	PARCEL #
GRADY VAN SHUE JR	31
TRUE HOMES LLC	32
COLBY C BOWERS	33
GRADY VAN SHUE JR	34
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KELASH KUMAR	64
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MECKLENBURG COUNTY	74
WILLIAM H LONG JR	75
UNIVERSITY HEIGHTS COMMUNITY ASSOCIATION	76
BACK CREEK ASSOC REFORMED PRESBYTERIAN CHURCH INC	77
PATSY P PRICE	78
JOSE O GONZALEZ	79
MOLIE VANG	80
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RENEE C KELLY	84
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JOHN P WIDMAIER	92
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MECKLENBURG COUNTY	94
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SANDRA M STOVALL	97
PHILLIP BRUCE NARDOCI	98
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GARY V SMITH	123

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
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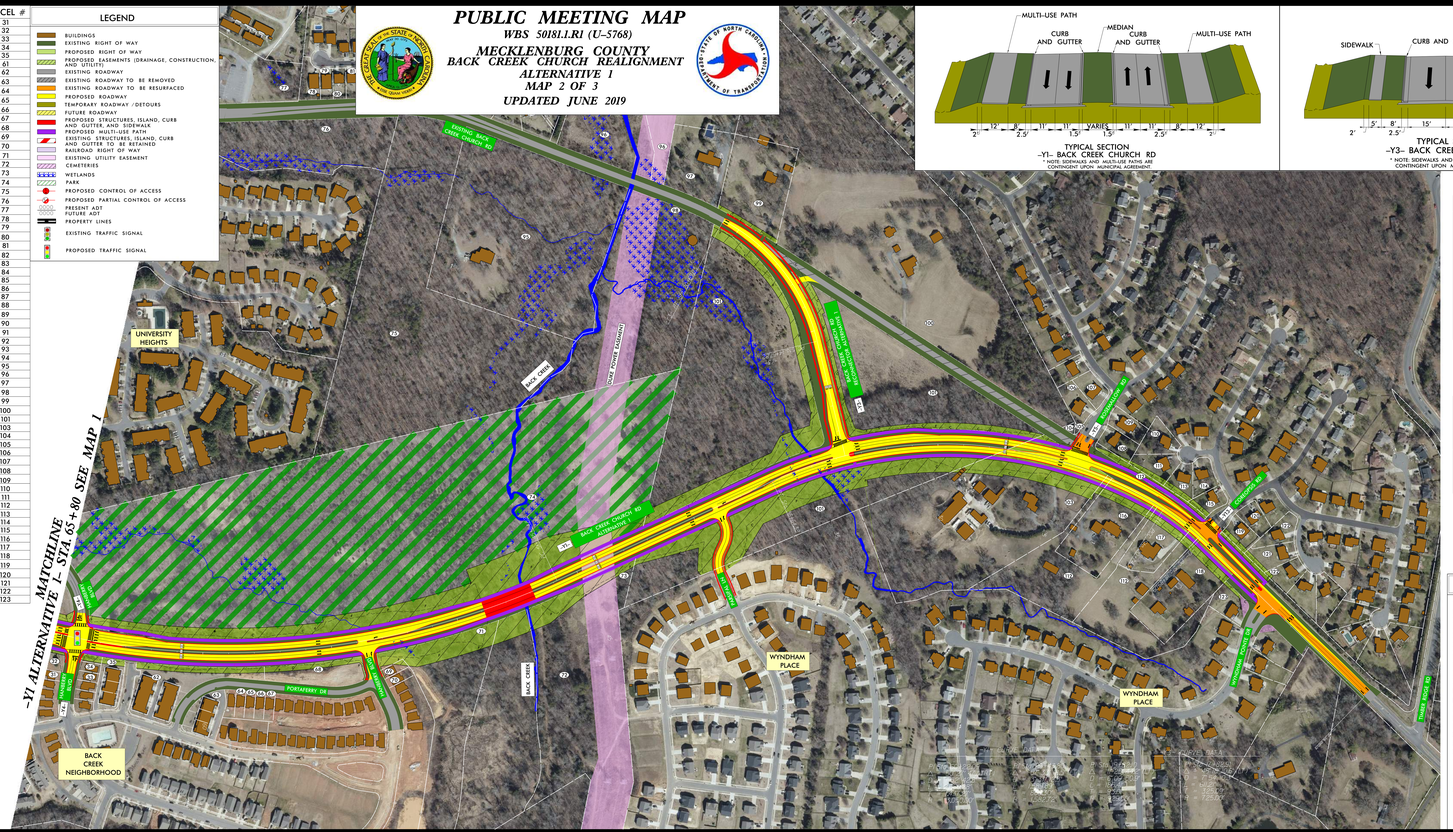
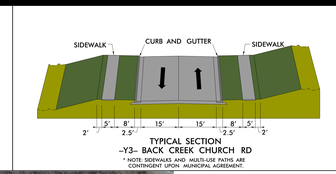


TYPICAL SECTION
–Y1– BACK CREEK CHURCH RD

* NOTE: SIDEWALKS AND MULTI-USE PATHS ARE CONTINGENT UPON MUNICIPAL AGREEMENT.



TYPICAL SECTION
–Y3– BACK CREEK CHURCH RD

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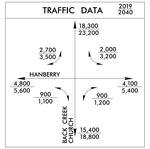
TRAFFIC DATA

2019 / 2040



UTILITY INFORMATION

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INCOMPLETE PLANS
DO NOT USE FOR ACQUISITION

DESIGN DATA

Functional Class = MINOR ARTERIAL
Design Speed = 35 MPH
Max Superelev. = 0.02

AERIAL IMAGERY:
SOURCE – NC ONE MAP
DATE TAKEN – APRIL 10, 2015

100' 0' 100' 200'
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PUBLIC MEETING MAP
WBS 50181.1.R1 (U-5768)
MECKLENBURG COUNTY
BACK CREEK CHURCH REALIGNMENT
ALTERNATIVE 1
MAP 2 OF 3
UPDATED JUNE 2019

PUBLIC MEETING MAP

WBS 50181.1.R1 (U-5768)

MECKLENBURG COUNTY

BACK CREEK CHURCH REALIGNMENT

ALTERNATIVE 1

MAP 2 OF 3

UPDATED JUNE 2019

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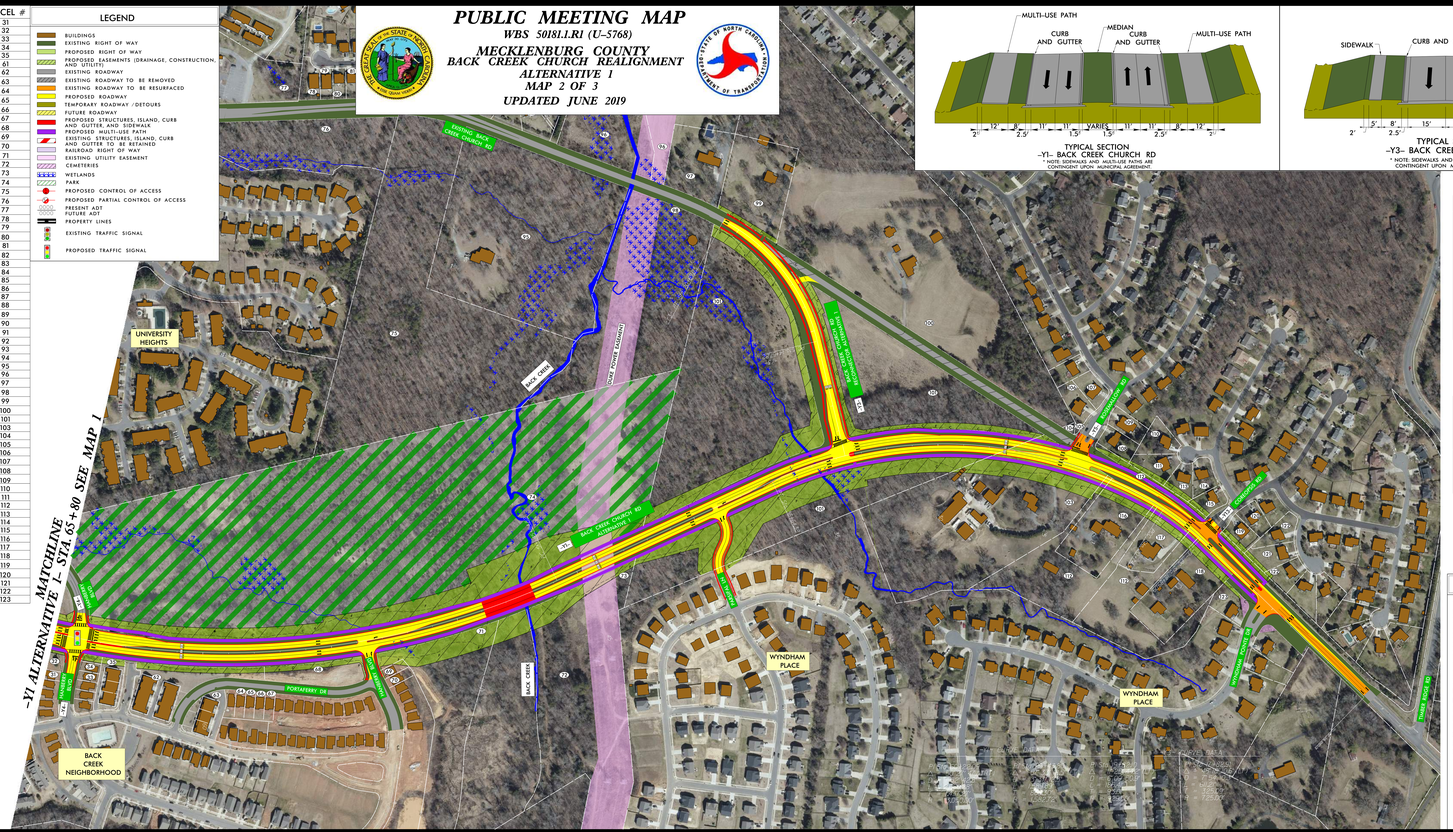

TYPICAL SECTION
–Y1– BACK CREEK CHURCH RD

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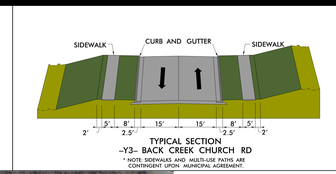

TYPICAL SECTION
–Y3– BACK CREEK CHURCH RD

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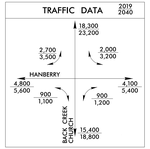
TRAFFIC DATA

2019 / 2040



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DO NOT USE FOR ACQUISITION

DESIGN DATA

Functional Class = MINOR ARTERIAL
Design Speed = 35 MPH
Max Superelev. = 0.02

AERIAL IMAGERY:
SOURCE – NC ONE MAP
DATE TAKEN – APRIL 10, 2015

100' 0' 100' 200'
(ENGLISH)

LEGEND

- BUILDINGS
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PUBLIC MEETING MAP
WBS 50181.1.R1 (U-5768)
MECKLENBURG COUNTY
BACK CREEK CHURCH REALIGNMENT
ALTERNATIVE 1
MAP 2 OF 3
UPDATED JUNE 2019

PUBLIC MEETING MAP

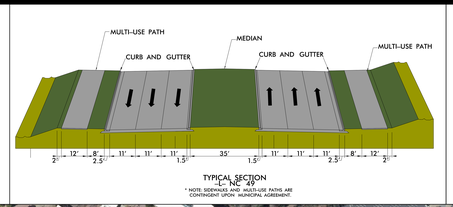
WBS 50181.1.R1 (U-5768)

MECKLENBURG COUNTY

NC 49 (UNIVERSITY CITY BLVD.)

MAP 1 OF 3

APRIL 2019



TYPICAL SECTION
–L- NC 49

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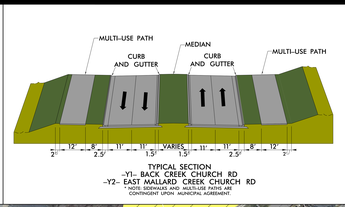


TYPICAL SECTION
–Y1- BACK CREEK CHURCH RD
–Y2- EAST MALLARD CREEK CHURCH RD

* NOTE: SIDEWALKS AND MULTI-USE PATHS ARE CONTINGENT UPON MUNICIPAL AGREEMENT.

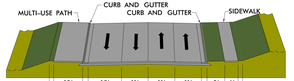
MATCHLINE

–Y1 ALTERNATIVE 1– STA. 65+80 SEE MAP 2

–Y1 ALTERNATIVE 2– STA. 44+38.49 SEE MAP 3

TYPICAL SECTION
–Y6- THOMAS COMBS DR

* NOTE: SIDEWALKS AND MULTI-USE PATHS ARE CONTINGENT UPON MUNICIPAL AGREEMENT



TYPICAL SECTION
–SW- QUADRANT RD

* NOTE: SIDEWALKS AND MULTI-USE PATHS ARE CONTINGENT UPON MUNICIPAL AGREEMENT

PARCEL OWNER	PARCEL #
UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE	1
BNY WESTERN TRUST CO, TST FOSCO TRUST	2
UNCC RENTAL PROPERTIES CONDO	3
UNIVERSITY TERRACE HOMEOWNER ASSOCIATION INC	4
UNIVERSITY HOUSE CHARLOTTE LLC	5
NC NU CHAPTER OF SIGMA PHI EPSILON HOUSING CORP	6
NC NU CHAPTER OF SIGMA PHI EPSILON HOUSING CORP	7
FLATS AT CAMPUS POINTE LP	8
HAVEN CAMPUS COMMUNITIES CHARLOTTE LLC	9
GMMGF UNIVERSITY WALK ASSOC LP	10
CHARLES E GRAY	11
COLVILLE II CONDOMINIUM	12
COLVILLE II CONDOMINIUM	13
CAMPUS STATION LLC	14
KLUTTZ FAMILY PROPERTIES LLC	15
KLUTTZ FAMILY PROPERTIES LLC	16
HUMMINGBIRD PROPERTIES LLC	17
KLUTTZ FAMILY PROPERTIES LLC	18
REALITY INCOME PROPERTIES 30 LLC	19
KLUTTZ FAMILY PROPERTIES LLC	20
SAM'S MART INC	21
SKIN LLC	22
MECKLENBURG COUNTRY ALCOHOLIC BEVERAGE CONTROL BOARD	23
VILLAGE AT BACK CREEK HOMEOWNERS ASSOCIATION INC	24
BWN INVESTMENTS LLC	25
DEPT OF TRANSPORTATION	26
ROBERT M STONE	27
PEGGY R THOMAS	28
VILLAGE AT BACK CREEK HOMEOWNERS ASSOCIATION INC	29
VILLAGES AT BACK CREEK HOMEOWNERS ASSOCIATION INC	30
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COLBY C BOWERS	33
GRADY VAN SHUE JR	34
VILLAGES AT BACK CREEK HOMEOWNERS ASSOCIATION INC	35
CH REALTY VII–PREISS SH CHARLOTTE U VILLAGE LLC	36
CH REALTY VII–PREISS SH CHARLOTTE U VILLAGE LLC	37
NC NU CHAPTER OF SIGMA PHI EPSILON HOUSING	38
HAREESHA YANDAPALLI	39
LUIS MORALES	40
LJW LAND LLC	41
III HEIGHT PLACE APARTMENTS LLC	42
GROVE HOLDINGS LLC	43
CH REALTY VII–PREISS SH CHARLOTTE U VILLAGE LLC	44
SHR–MILLENNIUM ONE APTS LLC	45
M–I CHARLOTTE INC	46
10039 UNIVERSITY CITY BLVD LLC	47
SXCW PROPERTIES LLC	48
SPF LLC	49
NANA GO NANA LLC INC	50
SAM'S INVESTAMENTS II LLC	51
HELEN BURRIS	52
DIJAYKAR INC	53
SHRILAXMI INC	54
JJNC UCB LLC	55
TSG PROPERTIES LLC	56
TSG PROPERTIES LLC	57
ALAN E ROLAND	58
UNIVERSITY TOWNES HOMEOWNERS ASSOCIATION	59
VILLAGE AT BACK CREEK HOMEOWNERS ASSOCIATION INC	60
UNIVERSITY TOWNES HOMEOWNERS ASSOCIATION	61

LEGEND

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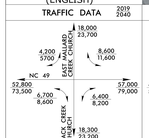
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION

DESIGN DATA
Functional Class = ARTERIAL
Design Speed = 45 MPH
Max Superelev. = 0.02

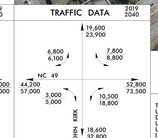
AERIAL IMAGERY:
SOURCE – NC ONE MAP
DATE TAKEN – APRIL 10, 2015

100' 0' 100' 200'
50'
(ENGLISH)

TRAFFIC DATA 2019 2040



TRAFFIC DATA 2019 2040



PARTIAL CONTROL OF ACCESS NOTE
PARTIAL CONTROL OF ACCESS IS DEFINED AS ONE ACCESS POINT PER PARCEL FOR PROPERTIES WITH LARGE ROAD FRONTAGES (FOR EXAMPLE, 2000 FEET OR MORE), AN ADDITIONAL ACCESS POINT MAY BE CONSIDERED.

UTILITY INFORMATION
TO PROVIDE GREATER VISUAL CLARITY, EXISTING AND PROPOSED UTILITIES ARE NOT SHOWN ON THESE MAPS OR ON OTHER DISPLAYS. THE UTILITY INFORMATION SHOWN ON THESE MAPS IS LIMITED TO LOCATIONS OF MAJOR EXISTING AND POTENTIAL CONFLICTS. ALL UTILITY DESIGNS SHOWN ON THESE MAPS, INCLUDING UTILITY EASEMENTS, ARE PRELIMINARY AND ARE SUBJECT TO CHANGE.

DRIVEWAY NOTE
DRIVEWAYS ARE NOT SHOWN AS MPAS ARE BASED ON PRELIMINARY PLANS AND ARE SUBJECT TO CHANGE. DRIVEWAYS LOCATIONS WILL BE FINALIZED AT A LATER DATE.

CONTROL OF ACCESS NOTE
FULL CONTROL OF ACCESS IS DEFINED AS A CONNECTION TO A FULL CITY STREET ONLY VIA RAMPS AT INTERCHANGES. ALL CROSS-STREETS ARE GRADE-SEPERATED. NO PRIVATE DRIVEWAY CONNECTIONS ALLOWED.

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- TEMPORARY ROADWAY /DETOURS
- FUTURE ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER, AND SIDEWALK
- PROPOSED MULTI-USE PATH
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE RETAINED
- RAILROAD RIGHT OF WAY
- EXISTING UTILITY EASEMENT
- CEMETERIES
- WETLANDS
- PARK
- PROPOSED CONTROL OF ACCESS
- PROPOSED PARTIAL CONTROL OF ACCESS
- PRESENT ADT
- FUTURE ADT
- PROPERTY LINES
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

PUBLIC MEETING MAP

WBS 50181.1.R1 (U-5768)

MECKLENBURG COUNTY

NC 49 (UNIVERSITY CITY BLVD.)

MAP 1 OF 3

APRIL 2019

Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

STIP U-5768

AGENDA

November 29, 2016 – 11:30 A.M.
Charlotte Mecklenburg Government Center – Charlotte, NC

Meeting Purpose: To coordinate with UNC Charlotte on design alternatives along NC 49, with a focus on a superstreet.

1. Introductions — Scott Cole, NCDOT
2. Project Status / Overview — Tracy Roberts, HNTB
3. Superstreet Presentation / Discussion — Joe Hummer / Jim Dunlop, NCDOT
4. NC 49 Traffic Analysis Discussion — Paige Hunter, HNTB
    a. Project Description
    b. 2040 Build Alternative 1 Concept
    c. 2040 Build Alternative 2 Concept
    d. No-Build Delay and Level of Service (LOS) Results
5. 2040 Build Traffic Simulations — Elizabeth Harris / Paige Hunter, HNTB
6. John Kirk Drive Project — Steve Blakley, Kimley-Horn
7. Questions / Discussion — All
8. Wrap-up / Summary — Tracy Roberts, HNTB

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

June 14, 2017

Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widen Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County

May 30, 2017 – 8:00 A.M.-9:30 A.M.

Meeting Purpose: To provide a project status update and discuss UNCC concerns for the subject project.

Meeting Attendees

Jeanine Bachtel	UNC Charlotte	jbachtel@uncc.edu	Wilson Stroud	NCDOT	wstroud@ncdot.gov
Brian Kugler	UNC Charlotte	bhkugler@uncc.edu	Ashley Landis	CDOT	alandis@charlotte.nc.gov
Phil Jones	UNC Charlotte	pmjones@uncc.edu	Joseph Hummer	NCDOT	jehummer@ncdot.gov
Peter Franz	UNC Charlotte	pfranz@uncc.edu	Norm Steinman	CDOT	nsteinman@ci.charlotte.nc.us
Tobe Holmes	UCP	tholmes@universitycitypartners.org	Johana Quinn	CDOT	jquinn@charlotte.nc.gov
Scott Cole	NCDOT	scole@ncdot.gov	Steve Blakley	Kimley-Horn	Steve.blakley@kimley-horn.com
Stuart Basham	NCDOT	slbasham@ncdot.gov	Dillon Turner	Kimley-Horn	Dillon-turner@kimley-horn.com
Nathan Adima*	NCDOT	nadima@ncdot.gov	Bradley Reynolds	HNTB	breynolds@hntb.com
Bryan Key*	NCDOT	bckey@ncdot.gov	Paige Hunter	HNTB	phunter@hntb.com
Mike Reese*	NCDOT	mikereese@ncdot.gov	Eric Seckinger	HNTB	eseckinger@hntb.com
Bailey Harden*	NCDOT	bharden@ncdot.gov	Ken Gilland	HNTB	kgilland@hntb.com
Beverly Robinson*	NCDOT	brobinson@ncdot.gov			

*-attended via phone

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Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

1. Introduction

The purpose of this meeting was to discuss the subject project and to provide University of North Carolina Charlotte (UNCC) an opportunity to provide input on their concerns. The meeting was organized by representatives of the Charlotte Department of Transportation (CDOT), the North Carolina Department of Transportation (NCDOT) and their consultants. The summary below outlines the topics discussed and the provided information for the attendees review and comment. The presentation is included with the meeting summary. Please respond with any comments by **June 15, 2017.**

After introductions, the project team summarized the project, the issues raised during the previous meeting with UNCC, and the results of the Traffic Analysis Report. That report examined the No-Build Condition, and three potential Build Alternatives: 6-lane conventional; 6-lane superstreet, and 6-lane modified superstreet, as shown in the enclosed slideshow.

The project team then discussed concepts to be evaluated in a Traffic Analysis Addendum report that include improvements to Old Concord Road and Thomas Combs Drive to improve network connectivity and a potential grade separation of NC 49 and East Mallard Creek Church Road/Back Creek Church Road.

During a previous coordination meeting for the project (11/29/2016), UNCC had voiced concerns about how the project would operate during event traffic (graduations, etc.). CDOT conducted traffic counts during the May graduation ceremonies for UNCC and proposes to use these data to evaluate the performance of the preferred alternative in a future design year scenario.

NCDOT presented a comparison of the Superstreet concept versus conventional intersections and provided information on the relative performance of both intersections with regards to the accommodation of motor vehicles and pedestrians.

UNCC representatives voiced approval for the improvements to Old Concord Road and Thomas Combs Drive. They prefer to maintain the existing crosswalk for John Kirk Drive on NC 49 on the western corner of John Kirk Drive to maintain accustomed pedestrian flow. They want the design to recognize that the project area is a mixed environment with campus, residential, and commercial uses. They don't want it to feel like a highway. All those in attendance were in favor of exploring the grade separation of NC 49 and East Mallard Creek Church Road/Back Creek Church Road.

NCDOT noted that the Superstreet concept would provide additional crossing opportunities for bicycles and pedestrians, would be safer for motorists and pedestrians, reduce delays for pedestrians and motorists, optimizes progressions through signalizations, and could be used to control speeds through signal timing.

UNCC asked for consideration of landscaping to "soften" the median. They noted new apartments that were under construction on the south side of NC 49 west of John Kirk Drive and stated concerns about side street delays. It was suggested that landscaping could

be useful in directing pedestrians to appropriate crossing areas. This could reduce pedestrian "sheet flow" across NC 49.

Kimley-Horn asked about the transition zone to the superstreet from west of John Kirk Drive. It was noted that the U-turns to accommodate left turn movements under a superstreet concept would be west of John Kirk Drive. They also asked if the proposed extension of Old Concord Road would allow left turns at the intersection with Back Creek Church Road. Such movements will be examined for the grade separated project options for NC 49, though the spacings would not work for the at-grade options.

It was noted that the current design speed of NC 49 was 50 miles per hour (mph) and the speed limit is currently 45 mph. Signal timings could be explored to control traffic speed along the facility, even late at night. It was also noted that the shorter signal cycles of the Superstreet would facilitate movements and reduce wait times for pedestrians. The Superstreet concept also forces side streets to turn right only, thereby eliminating signals for some locations.

UNCC would like to explore the possibility of allowing left turns onto John Kirk Drive from eastbound NC 49 during events. They asked about the possibility of using police officers to control event traffic under that scenario. NCDOT noted that because police officers operate a single intersection independently of other intersections, they often displace congestions to adjacent intersections.

UNCC was concerned that people not familiar with the Superstreet concept might struggle to understand how to navigate the U-turns. They noted that visitors to the campus could be confused. NCDOT noted that under the superstreet concept, users normally have just two options to choose from, which simplifies the decision-making process. NCDOT also noted that when motorist are directed to go opposite of their desired route (e.g. commencement ceremony), it is natural to look for the first available U-turn.

The meeting concluded with a summary of the schedule, as shown in the enclosed slideshow.

Please direct any comments or questions about the meeting summary to Wilson Stroud, (919-707-6045, wstroud@ncdot.gov), Ken Gilland (919-424-0486, kgilland@hntb.com), or Ashley Landis (704-432-2674, alandis@charlottenc.gov).

KG/AL/WS

Attachments: Agenda, Presentation

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

April 15, 2019

UNC Charlotte and University City Partners Small Group Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widening of Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County

April 9, 2019 – 2:00 to 4:00 P.M.
UNC Charlotte Cone Center, Room 112B
9025 University Road, Charlotte

Meeting Purpose: To provide project update to UNC Charlotte and UCP and collect feedback.

Meeting Attendees

Betty Doster	UNC Charlotte	betty.doster@uncc.edu
Peter Franz	UNC Charlotte	pfranz@uncc.edu
Jeanine Bachtel	UNC Charlotte	jbachtel@uncc.edu
Brian Kugler	UNC Charlotte	bhkugler@uncc.edu
Darlene Heater	University City Partners	dheater@universitycitypartners.org
Tobe Holmes	University City Partners	tholmes@universitycitypartners.org
Johanna Quinn	CDOT	jquinn@charlottenc.gov
Liz Babson	CDOT	ebabson@charlottenc.gov
Dan Gallagher	CDOT	dgallagher@ci.charlotte.nc.us
Keith Bryant	CDOT	kbryant@ci.charlotte.nc.us
Wilson Stroud	NCDOT	wstroud@ncdot.gov
Bryan Key	NCDOT	bckey@ncdot.gov
Jim Dunlop	NCDOT	jdunlop@ncdot.gov
Teresa Hart	NCDOT	thart@jmt.com
Scott Cole	NCDOT-Div. 10	scole@ncdot.gov
Stuart Basham	NCDOT-Div. 10	slbasham@ncdot.gov
Brett Canipe	NCDOT-Div. 10	bdcanipe@ncdot.gov
Tenecia Jones	HNTB	tgjones@hntb.com
Paige Hunter	HNTB	phunter@hntb.com
Jeff Hess	HNTB	jhess@hntb.com
Ken Gilland	HNTB	kgilland@hntb.com
Adam Archual	HNTB	aarchual@hntb.com

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Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

HNTB kicked off the small group meeting for STIP Project No. U-5768, widening of N.C. 49/University City Boulevard, realignment of Back Creek Church Road, and closure of the Back Creek Church Road at-grade railroad crossing. The purpose of the meeting was to gather feedback from UNC Charlotte and University City Partners(UCP) on the solution NCDOT and CDOT developed to address the needs for the University City Boulevard corridor. The PowerPoint Presentation given at the meeting is attached to this summary. The following summarizes the germane discussion points collected at the meeting and provides **post-meeting notes** to provide clarification and/or additional information not presented at the meeting. UNC Charlotte and UCP identified four areas of concern (described in more detail below): (1) perception of UNC Charlotte as a commuter school, (2) desire to see other applications of the proposed design in similar contexts, (3) demonstration that the stakeholders needs are included in the design, and (4) transportation network impacts, beyond the project footprint.

Overall, UNC Charlotte and UCP expressed disappointment and concern about not being included in the decision-making process, as partners, over the past year since the last meeting with NCDOT and CDOT on April 11, 2018. NCDOT explained that the delay was required to finalize traffic studies needed to develop an alternative that would meet the needs of the corridor. NCDOT and CDOT are committed to improving communications between UNC Charlotte and UCP moving forward in project development.

(1) Commuter School Perception

UNC Charlotte and UCP are pursuing development and promoting commuter behavior that favors non-vehicular access to the school. The University is pushing development to the edges of the campus; alternately, student housing and apartments are being developed along University City Boulevard. Bicycle and pedestrian access to the campus is improving; UNC Charlotte noted that nearly 1,200 students cross John Kirk Drive and University City Boulevard daily from nearby apartment complexes. The University promotes private busing programs at several off-campus apartment complexes and student housing.

Post-meeting note: During the meeting, NCDOT stated that 77% of UNC Charlotte students commute, which was an inaccurate statement. It should be noted that this information was not used in the project traffic forecasts. The traffic forecast was prepared by NCDOT in 2015. All of the existing traffic data used for the traffic forecast and subsequent analyses were collected and approved by NCDOT and/or CDOT subcontractors. This data undergoes a quality control process to ensure accuracy. The traffic model used to forecast future traffic volumes comes directly from the Metrolina Regional Travel Demand Model (MRM). The 2015 No Build traffic volumes and traffic factor estimates are based upon current (2015) counts and historic average annual daily traffic (AADT) trends (between 1990 and 2014) projected to 2015. AADT volumes in the 2040 scenarios were estimated based upon annual growth rates derived from the MRM15v1.0 output. Per the Charlotte Regional Transportation Planning Organization (CRTPO), the MRM:

- was developed as the primary tool for evaluating existing and future travel demand in the greater Charlotte area;

- is governed by a Memorandum of Agreement (MOA) through an Executive Committee and a Planning & Oversight Committee. The region's four Metropolitan Planning Organizations (MPOs) and two Rural Planning Organizations (RPOs) are signatories to the MOA, along with the NC and SC Departments of Transportation.

(2) Design Alternatives

UNC Charlotte and UCP expressed concerns about the "superstreet" design proposed for University City Boulevard. (Note: NCDOT is referring to this type of design as "Reduced Conflict Intersections" [RCI].) The stated concerns were related to the bicycle and pedestrian experience, crossing distances, and crossing routes. UCP voiced concerns about walkability, that if the crossing environment was too intimidating (i.e., too many lanes), students would not cross the street but choose to drive across the street.

NCDOT explained that the proposed project must address the identified needs to improve capacity and safety for all modes of transportation, realign Back Creek Church Road, and close the existing Back Creek Church Road railroad crossing. Any viable project alternative must address these needs. Regulatory resource agencies (e.g., US Army Corps of Engineers) are obligated to select an alternative that addresses the project's needs and is the least environmentally damaging practicable alternative (i.e., LEDPA).

UCP asked whether a new street grid network was evaluated. NCDOT has not evaluated a new street grid network because the impacts associated with such a proposal would be great, including incurring greater impacts to natural resources (e.g., streams) and the human environment (e.g., displacements). Although a grid network is not possible due to physical constraints within the built environment, NCDOT has carefully worked with the City to identify useful connections. The creation of the Eastern Circumferential Roadway (ECR) is the first step in creating an important alternative thoroughfare which parallels I-485 and WT Harris Boulevard. The project also includes new and improved connections in the network, including:

- the proposed quadrant roadways at the NC 49 intersection with Mallard Creek Church Road and the proposed realigned Back Creek Church Road,
- the proposed Old Concord Road intersection with the realigned Back Creek Church Road, providing a local connection parallel to NC 49, and
- the proposed tie-ins to existing neighborhoods via Hanberry Boulevard (Villages at Back Creek) and Parsifal Lane (Wyndham Place) to realigned Back Creek Church Road.

UNCC asked whether NCDOT would consider not widening NC 49, but decreasing the speed limit, constructing multi-use paths, and introducing more signalized bicycle and pedestrian crossings. As this proposal would not meet the capacity needs of the project, NCDOT does not consider this a viable alternative. It should be noted that the current intersection configuration (i.e., "conventional" signalized intersection-type), which allows left turns onto University City Boulevard, has more and longer signals, which would make controlling speeds more difficult.

(3) UNC Charlotte and UCP Interests Reflected in Design

Following the last meeting (April 11, 2018), NCDOT incorporated a few design revisions that addressed UNC Charlotte and UCP's stated concerns about the design. NCDOT reduced the proposed posted speed limit to 35 mph and reduced proposed lane widths to 11 feet (from the standard 12-feet). Further, the proposed Reduced Conflict Intersection (RCI) design is safer for all users, including bicycles and pedestrians, and provides more crossing opportunities and shorter crossing distances of NC 49.

UCP told the group that University City has the potential to be Charlotte's second city center, and that UCP is pursuing and encouraging development that will transform the surrounds to an urban environment. UCP does not think that the current design proposal conveys the "urban feel" that is envisioned. NCDOT responded that the raised median and curb and gutter, common urban transportation features, included on NC 49 will improve the aesthetic quality of the corridor.

UNC Charlotte asked if this project is in the best interest of the City of Charlotte. CDOT indicated that the project is supported by the City, as the project provides connectivity, pedestrian and bicycle transportation infrastructure, and safety benefits which would not otherwise be achievable without this project. NCDOT noted that NC 49 is a strategic transportation corridor and was one of the few radials out of the City in this area. It was also noted that the University and the surrounding area is a destination that attracts visitors, regardless of the alternative carried forward for the project.

UCP stated that they currently have planners conducting transportation planning scenarios to predict future land use, transportation, and other related items. NCDOT requested that this information be shared as soon as practicable. NCDOT is interested in evaluating any concept that can meet the purpose and need of the project. UNCC also asked about the arterial study in which they were a participant. NCDOT and CDOT are working to finalize the funding agreement and anticipate the study will start soon.

(4) Transportation Impacts

UNC Charlotte and UCP expressed concerns that the inclusion of the RCI design here will set a precedent for future thoroughfare improvements in the University City area. NCDOT replied that there is currently no project funded for widening NC 49 to the south/west and this project does not predetermine solutions for future transportation projects.

UCP also expressed concerns about what the next solution would look like for NC 49, stating the "logical" progression would be improving NC 49 to expressway standards at a future unknown date after the current project no longer accommodates the capacity needs.

Action Items:

- NCDOT will develop a plan to ensure more regular coordination with UNC Charlotte and UCP about the project's design.

- NCDOT will provide additional information (e.g., analyses) that led to the current proposed design decision(s) to UNC Charlotte and UCP.
- NCDOT and CDOT will hold a public meeting on the project to gain input on potential alternatives for Back Creek Church Road and NC 49.
- UNC Charlotte and UCP will share information for any alternatives that could meet the purpose and need of the project.

Please direct any comments or questions about the meeting summary to Ken Gilland (919-424-0486, kgilland@hntb.com).

KG

UNC CHARLOTTE

Office of the Chancellor

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April 23, 2019

Mr. J. Scott Cole, P.E.
District Engineer, District 10
NC Department of Transportation
716 West Main Street
Albemarle, NC 28001

Via Email: scole@ncdot.gov

RE: State Transportation Improvement Program (STIP) Project No. U-5768

Dear Scott:

The NC Department of Transportation and UNC Charlotte, along with the City of Charlotte, have partnered on many successful projects for the benefit of this region. These include, most notably, the Blue Line Extension, improvements to the entrances to campus at Alumni Way and W.T. Harris Boulevard, the South Entrance at Cameron and University City Boulevards, and the current project north of Institute Circle on Tryon Street to relieve congestion in that area. By working together in this same spirit of collaboration, I am hopeful that we and other interested parties can reach a solution that addresses the multi-modal transportation needs and character of this area.

After nearly eighteen months without significant engagement with NCDOT, the University became concerned when the proposed Super Street design was presented with an aggressive timeline and without a full explanation of the data and methodology. We are similarly concerned that a project exists, although not funded, to continue the Super Street design on University City Boulevard in front of campus and continue it all the way to Interstate 85. While the Super Street design has applications in non-urban areas, we strongly object to this design in the highly pedestrian front door of the region's public university. Furthermore, we disagree with the plans that will increase vehicle trips on University City Boulevard and, instead, we would encourage you to explore alternative routes.

The University has made significant investments to increase multi-modal transportation. In addition to our investment in the extension of light rail, we've launched an enhanced on-campus transit system that has seen a 300% increase in ridership over the last three years, from 520,000 rides to 1.4 million rides. We have launched a bike share and car-sharing program, and have

worked with the area apartment complexes to accommodate shuttles in an orderly and efficient fashion to reduce the number of student cars on campus. We are also in the planning stages of a formal Transportation Demand Management (TDM) program and a central transportation hub on campus, which would connect multi-modal options such as campus transit and paratransit, CATS transit, apartment shuttles, rideshare vehicles (Uber, Lyft, etc.), bike share, etc. all in one area, in an effort to promote the use of alternative transportation and to minimize vehicular congestion. These initiatives contribute to a more pedestrian-friendly campus and neighborhood, unlike the proposed Super Street design.

Much has changed since the initial planning for the Super Street began in 2007. Since that time, UNC Charlotte and the surrounding area have changed significantly; enrollment at UNC Charlotte has increased nearly 40% to almost 30,000, and the University has transformed from the commuter school of the '80s and '90s to a primarily residential campus. In addition to the 6,200 residence hall beds located on campus, 4,291 apartment beds have been added by the private sector since 2013, and these complexes are either in walking distance or provide shuttles to campus. Our data suggest that 15,000 students live within a two-mile radius of campus. Thus, more students have options to get to campus without taking single car trips. Additionally, the CATS light rail connects the campus to uptown Charlotte and along the Blue Line Extension where potential housing options are opening or under development.

As the University City area becomes more urban in character, creating a walkable community and strengthening the connections between the University and our neighbors are more important than ever. Pedestrian and bike traffic is increasing, and ensuring the safety of students, faculty, and visitors coming to campus is of primary concern. While NCDOT asserts that the Super Street is safer for pedestrians, we strongly believe that this can be a flawed conclusion, particularly as applied to students. Our experience suggests that widened expanses or lengthy traverses to access marked crosswalks are viewed by students as uninviting to cross; accordingly, they resort to pursuing dangerous crossings on their own or revert to using their vehicles.

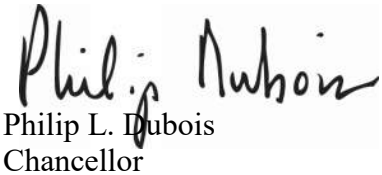
We believe that widening University City Boulevard to create a Super Street at the University's main entrance will make it more difficult for students and others to cross University City Boulevard safely, will limit opportunities to connect to adjacent neighborhoods, and will negatively affect the character of the entrance to campus.

The potential impacts of implementing the Super Street concept at the main entrance to campus and to the surrounding area have not been thoroughly studied in terms of the area's neighborhood character, student orientation, and the quality of life of local residents, businesses, and the UNC Charlotte community.

We recommend NCDOT and CDOT work with UNC Charlotte, University City Partners, and the neighborhoods on a study to look at alternatives to balance traffic flow, increase pedestrian access, and consider other thoroughfare options. We recommend the planning assumptions for the Super Street be re-examined and reflect today's urban environment and the projected growth of the University (to 35,000 students by 2025) and the greater University City area.

We request that the implementation of the Super Street be delayed until the impacts are studied, alternatives considered, and a solution that addresses the community's concerns can be found.

Cordially,



Philip L. Dubois
Chancellor

Cc: Sam Bowles, Board Member, NC Department of Transportation
Tony Lathrop, Board Member, NC Department of Transportation
James H. Trogdon, III, Secretary, NC Department of Transportation
Mayor Vi Lyles, City of Charlotte
Marcus Jones, City Manager, City of Charlotte
Liz Babson, Director, City of Charlotte Department of Transportation
Darlene Heater, Executive Director, University City Partners
Beth Hardin, Vice Chancellor for Business Affairs, UNC Charlotte
Betty Doster, Special Assistant to the Chancellor for Constituent Relations, UNC Charlotte

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April 22, 2019

Mr. Scott Cole
NC Department of Transportation
Highway Division 10
716 W Main St.
Albemarle, 28001

RE: University City Boulevard/Hwy 49 Proposed Street Changes

Scott:

As you are aware, University City Partners does not believe that the proposed Super Street (Synchronized Signal or Limited Turn Access) recommendation is an appropriate solution for addressing the current and forthcoming needs of this area. The Super Street concept originated as a rural highspeed divided highway and this solution is out of context and negatively impacts urban form and economic development in University City, an area committed to capitalizing on investments in transit, walkability and a network of streets in order to shift towards a more viable and sustainable future.

While UNC Charlotte and University City have been experiencing growth, we have been strategic and intentional in directing this growth. Specifically, the board of University City Partners has been executing to increase densification and urbanization, mostly due to the light rail and the changing preferences of residents and workers. Recent research conducted by University City Partners and the Urban Land Institute have independently shown the significant demand for walkability.

Both UCP and the University have been laser-focused on increasing walkability and bicycle access in our growing urban district and campus because we know that pedestrian traffic is going to increase significantly as the campus grows and University City adds density. The University began leaving the commuter campus model as transit service to campus became imminent and now has 75% of students living within 3-miles of campus, with significant concentrations living in one-quarter to one-half mile of campus, a distance walkable for students. They have changed campus busing to increase frequency and ridership and are also encouraging off campus housing complexes to send shuttles to campus to decrease student parking demand. Communications to staff and students encourage mass transit and the use of new bike share and car share. And the University does not have any plans to build more parking but is working on a new multi modal/transit hub on campus.

University City Partners is working with the City to increase transit-oriented development. We were an active participant in developing a new TOD ordinance that will allow more density at our transit stations while increasing walkability. We are now working on an updated Vision for University City to focus on urbanization and walkability, based on investments in transit. At the same time, we have been very firm in our expectations for off-campus student housing, allowing only developments adjacent and easily walkable to the University to progress. We have worked to advance urbanity by ensuring new developments contribute by building great streets for pedestrians including building form, connectivity and smaller blocks. And we have spent considerable time and resources planning for significant Cross Charlotte Trail/greenway connections across Ucity Blvd with new ped and bike accommodations and new art enhancements and placemaking initiatives for

visit us at
universitycitypartners.org

One University Place
8801 JM Keynes Drive, Suite 450
Charlotte, NC 28262

704.549.4141
704.688.2481 fax

this cross section. We are also having discussions with four major employers in the URP to invest in shuttle circulators that will increase ridership on the light rail by adding this station to door multi-rider service.

The proposed changes to University City Blvd/Hwy 49 do not support our top priorities of strengthening our urban fabric or encouraging/supporting walkability and safety for these reasons:

- Cross sections exceeding 4 lanes are discouraging to pedestrians, limiting walkability. The road design should encourage pedestrians to walk/bike and increasing the number of the volume vehicles at speeds in excess of 25 to 30 miles per hour are not incentives. Pedestrians have an 85% chance of dying at speeds exceeding 40 mph.
- The proposed crossing patterns are not intuitive and are arduous for pedestrians.
- The Super Street design limits the number of pedestrian crossings at signals. 40% of pedestrian deaths are outside of crosswalks. Traffic-calming measures and designs forcing very slow vehicular speeds make the road safer for pedestrians and increase the likelihood of walking and biking.

We believe for these reasons that closely-spaced, signalized crosswalks are the best solution for enhancing walkability near UNC Charlotte and throughout University City. While the Super Street section is over 50% safer for pedestrians at signalized intersections, it is only 14% safer at unsignalized intersections. Pedestrians are more likely to use conventional crosswalks as opposed to a multi-step/multi-signal crosswalk. A barrier of any kind will have a limited effect to stop crossing outside of crosswalks.

We acknowledge that the University agreed to the thoroughfare plan 12 years ago. However, so many important factors have changed since then and new investments and programs by the University and University City Partners will continue to positively impact mobility and modes. A growing student body and residential population are very much related to these changes and were the impetus for the thoroughfares study, intended to inform future investments for University City Boulevard/Hwy 49. As you know this project has been held up by NCDOT for quite some time.

In search of alternate solutions that reflect the urbanizing nature of the NC 49 corridor, we would like to review the Super Street project using current data, updated modeling as well as new information from UCP and the University. We would prefer to examine the possibility of a network solution as opposed to modifications on a street by street basis which will force a significant amount of volume onto NC 49 and connecting streets. We need to find a solution that supports the University City Area Plan that embraces the urban form, mixed-use development/redevelopment and limits auto oriented uses on NC 49. And, we need to find a solution that honors and enhances our economic engine and talent generator that is University of North Carolina at Charlotte.

We are ready to roll up our sleeves and work with our partners at NCDOT and CDOT in search of this solution.

Sincerely,

Darlene Heater

Darlene Heater
Executive Director
and
The University City Partners Board of Directors

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 7, 2019

UNC Charlotte and University City Partners Small Group Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widening of Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County

July 2, 2019 – 10:00 to 12:00 P.M.
University City Partners (UCP) Conference Room
8801 JM Keynes Dr. Suite 450 Charlotte, NC

Meeting Purpose: To provide project update to UNC Charlotte and UCP and collect feedback.

Meeting Attendees

Greg Phipps	Charlotte City Council	gaphipps@charlottenc.gov
Betty Doster	UNC Charlotte	betty.doster@uncc.edu
Peter Franz	UNC Charlotte	pfranz@uncc.edu
Brian Kugler	UNC Charlotte	bhkugler@uncc.edu
Chandler Crean	UNC Charlotte	studentbodypresident@uncc.edu
Darlene Heater	University City Partners	dheater@universitycitypartners.org
Tobe Holmes	University City Partners	tholmes@universitycitypartners.org
Mark Reynolds	College Downs	mreynolds555@gmail.com
Martin Zimmerman	College Downs	martin@citywisestudio.us
Johanna Quinn	CDOT	jquinn@charlottenc.gov
Keith Bryant	CDOT	kbryant@ci.charlotte.nc.us
Wilson Stroud	NCDOT	wstroud@ncdot.gov
Brian Murphy	NCDOT	bckey@ncdot.gov
Joe Hummer	NCDOT	jdunlop@ncdot.gov
Teresa Hart	NCDOT	thart@jmt.com
Scott Cole	NCDOT-Div. 10	scole@ncdot.gov
Stuart Basham	NCDOT-Div. 10	slbasham@ncdot.gov
Brett Canipe	NCDOT-Div. 10	bdcanipe@ncdot.gov
Brian Rossi	EMH&T	brossi@emht.com
Paige Hunter	HNTB	phunter@hntb.com
Jeff Hess	HNTB	jhess@hntb.com
Ken Gilland	HNTB	kgilland@hntb.com

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Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

The meeting began with introductions. Keith Bryant discussed the history of the subject project and how it was recommended for implementation by the City, NCDOT, and CRTPO via their project selection process. Scott Cole described the project and activities undertaken to date for the subject project. Based on work done to date, NCDOT and CDOT have found a solution that meets the purpose and need of the project as agreed upon by resource agencies and the City.

Betty Doster commented that she wanted more neighborhood engagement. The University's position is that they do not believe enough information from them has been included and they want to know what data they could provide to NCDOT going forward. Darlene Heater stated that the goal of UCP was to elevate the pedestrian experience to encourage walking and biking as preferred modes of transportation. She later stated that her goals for the corridor were to have an experience similar to Hillsborough Street or Franklin Street.

Scott and Wilson Stroud noted that after the April 23 public meeting, multiple homeowner's associations (HOAs) had contacted NCDOT about a public meeting and that they were glad to coordinate with any entity that wanted information or to provide input about the project. Mark Reynolds stated that he did not feel University Downs had been provided with sufficient opportunities for input. NCDOT and CDOT will coordinate with the HOAs and set up a meeting with representatives of those associations who wish to provide input on the project.

Councilman Phipps noted that the two projects (the improvements to University City Boulevard and the realignment of Back Creek Church Road) have been linked for some time and the City has been planning these projects for many years. He felt that the implementation of the Eastern Circumferential Road (ECR), which would be expedited with the proposed improvements, is critical to the long-term infrastructure needs of the area.

Darlene asked if the ECR had to connect to University City Boulevard. Scott answered that NCDOT and CDOT had explored grade separated options, and that the at-grade options provided similar performance for less cost and allowed for better access for bicyclists and pedestrians.

There was some discussion of the University City Area Plan. Keith Bryant noted that the plan called for a six-lane section for University City Boulevard. Tobe Holmes stated that he felt the total plan (Policy Areas 10b and 10c) was not fully represented by the current project. Councilman Phipps asked if the University City Area Plan addressed the area from John Kirk Drive to I-485. Tobe stated that it did not, but that UCP felt that the U-5768 project has its current form because impacts of the project extend beyond the immediate corridor.

Mark stated that he is opposed to additional laneage on University City Boulevard. Scott noted that the proposed Reduced Conflict Intersection (RCI) allowed for fewer lanes than would be needed for a "conventional" intersection to accommodate the anticipated traffic on University City Boulevard in 2040.

There was a discussion of crash rates. Tobe asked if crash data could be provided to UCP. Ken Gilland stated that the information would be supplied, along with the traffic analysis and traffic analysis addendum. Brian Murphy stated that there were 815 crashes along the corridor from March 1, 2014 through February 28, 2019. The average year experienced 165 crashes. Darlene asked if that was indicative of the more congested roads in Charlotte. NCDOT stated that if UCP could provide 1-mile sections of roadway in Charlotte that they would consider comparable to University City Boulevard, NCDOT would provide a comparison between the facilities.

Several members of UCP and UNC Charlotte stated that they felt that while the proposed RCI design is statistically safer, that is not conducive to encouraging pedestrian crossings and does not match the behavior of UNC Charlotte students. It was noted that future construction may increase pedestrian crossings to the west of the U-5768 project corridor. It was noted that the project would provide additional crossings and that NCDOT proposed reducing the speed of University City Boulevard from 45 miles per hour (mph) to 35 mph. Based on input from this meeting, NCDOT will explore moving the westernmost crossing closer to the existing signalized crossing to provide a more natural access to campus facilities. CDOT had conducted pedestrian traffic counts in September 2018.

Brian Kugler of UNC Charlotte provided an update of the arterial study currently being conducted in the area. Kimley Horn conducted pedestrian counts which include a new apartment building on April 23, 2019. Betty/Tobe will provide that information to NCDOT. The study will use interviews to summaries how staff and faculty access campus. The anticipated completion date of the study was not available. Brian K. asked if NCDOT had examined storage capacity of pedestrians in the medians along the project corridor.

Tobe provided an update on the corridor study. UCP is concerned about the ramifications that the U-5768 project would have beyond its current limits, specifically west on University City Boulevard towards US 29. The corridor study is examining No-Build and Build scenarios for U-5768. They will also examine if there is a way to reduce anticipated traffic increases along Back Creek Church Road, how alternative modes of transportation might reduce future automotive traffic, and the use of I-85 as a parallel route. The study should be finalized by the end of August.

Betty asked if alternatives could be explored that changed traffic routing in the area of the project. Joanna asked if UCP were going to discuss potential new bus routes with CATS. Darlene noted that they were looking at the number of new routes that may be recommended/accommodated.

The proposed next step for coordination with UNC Charlotte and UCP is a charette. Tobe (UCP), Brett (NCDOT), Peter Franz (UNCC), Keith (CDOT), and a representative from the Back Creek Church Road homeowner's associations should be included in planning the charette. There should be a neutral facilitator. The meeting should take place as soon as it can be scheduled.

Action Items:

- The team mentioned above will meet to decide on the format and date for the proposed charette.
- NCDOT will coordinate with area homeowners associations and will set up small group meetings as appropriate.
- HNTB will provide crash data and traffic study information to meeting attendees (enclosed).
- UNC Charlotte and UCP will share information on pedestrian crossings and updates on their studies as available.
- UCP will provide information on 4-lane, median divided state routes in Charlotte that they feel are comparable to University City Boulevard to allow for a city-specific comparison of crash rates.

Please direct any comments or questions about the meeting summary to Wilson Stroud (919-707-6045, wstroud@ncdot.gov), or Ken Gilland (919-424-0486, kgilland@hntb.com).

WS/kg

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 15, 2019

UNC Charlotte and University City Partners Small Group Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widening of Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County

August 15, 2019 – 11:00 A.M. to 4:00 P.M.
University City Partners (UCP) Conference Room
8801 JM Keynes Dr. Suite 450 Charlotte, NC

Meeting Purpose: To exchange ideas on the subject project.

Meeting Attendees

Betty Doster	UNC Charlotte	betty.doster@uncc.edu
Peter Franz	UNC Charlotte	pfranz@uncc.edu
Brian Kugler	UNC Charlotte	bhkugler@uncc.edu
Chandler Crean	UNC Charlotte	studentbodypresident@uncc.edu
Doug Lape	UNC Charlotte	Doug.lape@uncc.edu
Darlene Heater	University City Partners	dheater@universitycitypartners.org
Tobe Holmes	University City Partners	tholmes@universitycitypartners.org
Richard Morris	College Downs HOA	
Johanna Quinn	CDOT	jquinn@charlottenc.gov
Keith Bryant	CDOT	kbryant@ci.charlotte.nc.us
Ashley Landis	CDOT	alandis@ci.charlotte.nc.us
Wilson Stroud	NCDOT	wstroud@ncdot.gov
Jim Dunlop	NCDOT	jdunlop@ncdot.gov
Brett Canipe	NCDOT-Div. 10	bdcanipe@ncdot.gov
Stuart Basham	NCDOT-Div. 10	slbasham@ncdot.gov
Elizabeth Harris	HNTB	eaharris@hntb.com
Paige Hunter*	HNTB	phunter@hntb.com
Jeff Hess	HNTB	jhess@hntb.com
Ken Gilland*	HNTB	kgilland@hntb.com

*Attended via phone

The meeting began with introductions. Community stakeholders shared project feedback and exchanged ideas about the areas surrounding the project sites.

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Brett Canipe and Jim Dunlop expressed that NCDOT believes this project is a great union of vehicular, cyclist, and pedestrian needs and that it provides an increased number of safer pedestrian crossings opportunities. They further stated that the project provides a more controlled operation for motor vehicles, especially with regards to speed control. NCDOT's goal is to deliver this project for area stakeholders as well as for the citizens throughout the state that use NC 49.

In previous meetings, UCP and UNC Charlotte expressed concern to NCDOT regarding intersection designs and about the effects for students' future interactions with the new crossings. NCDOT requested that stakeholders share their specific concerns.

Darlene Heater stated that UCP (University City Partners) does not wish to delay the project. Darlene stated that UCP would like to change the speed limit of the facility now. NCDOT responded that the RCI (Reduced Conflict Intersection) allows each mainline direction to serve as a one-way street, simplifying speed control.

Doug Lape expressed concerns provided from UNC Charlotte, expressing the continued desire to protect the safety and security of students. Doug stated that UNC Charlotte is concerned that students will not cross at signed crossings. Doug expressed questions regarding how the current design addresses side streets. Other questions included inquiring as to what other sites have demand such as UNC Charlotte and what measures will be used to address areas outside of the project limits. Doug inquired about what the project will look like. Doug provided specific questions about how the main entrance into UNC Charlotte would be affected.

Keith Bryant noted that CDOT had taken pedestrian counts in 2018 which indicated a need for additional signalized intersections, as students were often not using the existing crossings. By reducing the distance between crossings and adding signals, it is believed use of signalized crossings will increase.

It was expressed that the proposed design is against what UCP and UNC Charlotte wants to see for the corridor, current proposed design seems at odds with current goals for the University City area. It should be noted however, that the plan is consistent with the City of Charlotte Council-adopted University City Area Plan.

Keith Bryant, Ashley Landis, Joanna Quinn expressed comments on behalf of CDOT (Charlotte Department of Transportation), stating that they suspect that the RCI will follow a similar path towards acceptance as roundabouts did. Acceptance will likely come once the design is successfully applied within more urban and suburban land use contexts, incorporating high-quality ped/bike facilities. They expressed their continued desire for the safety for both motor vehicles and non-motorized traffic. Pedestrian benefits of the project were discussed including: proposing wide multi-use paths to provide a non-vehicular network, connecting communities in the Back Creek area with a future neighborhood park

and greenway, to the University City Boulevard corridor, W Mallard Creek Church Road, and UNC Charlotte.

They also noted that there are no proposed conflicting movements with U-turn crossings as well as stating that wide pedestrian storage areas are anticipated within the median and along paths. They further expressed that connectivity is increased at Mallard Creek/Back Creek NC 49 intersection with quadrant roads provided in the proposed design. Further stating that this would operate something like a release valve to provide additional connectivity, allowing for more neighborhood connections along the future realigned Back Creek Church Road. They noted the importance of ECR overall in providing an alternative north/south route to I-485 and WT Harris, and the desire to take some of the vehicle trips off NC 49 was also discussed.

Tobe Holmes of UCP outlined some of the concerns noted by UCP and UNC Charlotte with regard to the proposed project design. Tobe stated that they are currently working to urbanize the UCP campus, with anticipated substantial future growth. Tobe expressed concerns regarding next steps after the project, and measures to address the front of the campus as well as future implications for the western NC 49, US 29 and WT Harris areas. Specific questions included:

- When improved facility reaches capacity (2045 or later), what happens next?
- Would the next step for NC 49 be a larger, median divided, limited access facility with higher speed?

Tobe noted that pedestrian activity is not always rational, and there may be some resistance to using the proposed pedestrian crossings.

Pedestrian Crossing Discussion:

UNC Charlotte and UCP expressed a desire to find ways to entice people to use the pedestrian crossings and suggested highlight paint and lighting. NCDOT stated that they will explore ways to encourage crossing usage. Potential ideas discussed include the use of vegetation and topography to direct students to these crossings. A need was expressed to work with any developers proposed new apartments in the area, to integrate site plans with the pedestrian crossing network.

UNC Charlotte and UCP expressed a desire to find ways to reduce vehicular speeds. NCDOT noted that current plans include reducing the speed limit through the project area to 35 miles per hour (mph). The department has also supported reducing lane widths to 11 feet and noted that the RCI intersections allow more complete speed control.

UNC Charlotte and UCP noted concerns over the size of the proposed U-turn bulb outs. They wish to discourage induced travel, especially from trucks. NCDOT noted that the design currently supports U-turns for a WB-62 designed conservatively large can reduce design vehicles if possible as we move forward. It was expressed that this would support circulation for most trucks and emergency vehicles. NCDOT will work with Charlotte Emergency Management Services to determine the vehicle type needed to service the UNC

Charlotte campus, which includes an 11-story building. UNC Charlotte and UCP discussed possibly implementing truck delivery time restrictions in the future.

UNC Charlotte and UCP expressed that the Town of Harrisburg (which was noted as having a desire to remain a bedroom community) must shift away from low density residential development and become supportive of bus rapid transit (BRT) and other mass transit approaches. UCP and UNC Charlotte encouraged a future traffic study for the US 29/NC 49 area. NCDOT noted that BRT (Bus Rapid Transit) works with the proposed design and does not require a dedicated bus lane.

Richard Morris, the College Downs HOA representative, asked if closing the existing Back Creek Church Road intersection would reduce property values for area neighborhoods. Richard also asked what happens to communities that have a change of access. Richard expressed concerns about traffic going in one direction from developments to ECR, as well as a concern about the potential for losing access to commercial facilities north of the current intersection. NCDOT noted that the reason for closing the existing at grade-crossing was to increase safety. It was expressed that there have been a number of accidents at the intersection, and that the number and speed of trains passing through the corridor is expected to increase in the future. NCDOT also noted that the closing will improve access to I-485, as the current intersection is too close to the ramps. NCDOT expressed that a reduction in through traffic would have both positive and negative effects. It is anticipated that once the crossing is closed, train horn noise will also decrease.

After a lunch break, discussions continued.

Future Corridor Vision Discussion:

UNC Charlotte and UCP expressed a concern about the discussed improvements, expressing that they would make a "superhighway" (8-lane facility) inevitable for the area. NCDOT noted that the proposed speed limit for the proposed facility was 35 mph, and that a traditional intersection configuration would neither function well, nor reduce the number of lanes. UNC Charlotte and UCP expressed a shared concern, that the next step along the corridor would be to widen NC 49 in front of the UNC Charlotte campus. They noted that traffic volumes are increasing, based on past studies and asked what could prevent future widenings after this project is constructed. NCDOT suggested that unless there is a replacement for NC 49, traffic on NC 49 will continue to increase. NCDOT also suggested that UNC Charlotte and UCP work with CDOT and CRTPO to study potential alternatives. NCDOT stated that if a project was developed to move traffic off NC 49, NCDOT would consider it for future funding.

UNC Charlotte and UCP asked what would happen if traffic congestion goes beyond U-turn at John Kirk Drive after the project is constructed. NCDOT stated that if there is a future issue with traffic west of John Kirk Drive on NC 49, CRTPO will evaluate what would be needed to solve this problem and work with transportation agencies accordingly.

NCDOT asked if any of the stakeholder's present supported the current project. UCP noted that they understand the need for the ECR project. CDOT stated that they supported the project. CDOT noted the safety need for all users of the project corridor. While most crashes in the corridor are vehicular, RCI addresses safety for all groups.

UNC Charlotte and UCP wished to distinguish between local and through traffic. They contended that local traffic was not a large percentage of peak hour traffic. They asked for a more extensive understanding of traffic on the project corridor through the day.

UCP asked how the two signals west of John Kirk Drive would operate after construction. NCDOT stated that traffic was modeled for peak hour and did not go outside of network. Optimal signal timing would be developed as the project progresses, but the City can adjust and determine signal timing to be compatible with the entire network.

UNC Charlotte and UCP are currently working on two traffic studies. They committed to sharing results with NCDOT and CDOT.

As part of prioritization, NCDOT did examine traffic west of John Kirk Drive. Final signal timing will be developed during final design. Let is anticipated in 2023, construction is anticipated to be completed in 2026 and final signal timing will be adjusted to current traffic needs at that time. Jim Dunlop stated that a model shows the facility can handle traffic within the corridor, but that there will be issues on the I-485 ramps.

UNC Charlotte and UCP asked if NCDOT could look "bigger" along the entire NC 49 corridor. They are concerned about the impacts of RCI with or without future NC 49 projects. NCDOT noted that widening NC 49 west of John Kirk drive had previously been considered but was not currently in the MTP and not under consideration at present.

UCP stated that if there were a future RCI west of this project, UCP would not wish to proceed with the current project. NCDOT stated that if UNC Charlotte and UCP do not want the project, that should be communicated to the Board and to the City. It was noted that the department can't use current project funds to study beyond the current limits. It was noted however that the project team could review analysis outside the current limits if the City would support.

UCP requested an analysis beyond the network and asked how long it would take. NCDOT stated that they will move forward with their process and will evaluate the larger network to the intersection of NC 49 with WT Harris.

UCP requested a commitment that the project would never be converted to an expressway. NCDOT stated that they cannot preclude future solutions. Any future project funded by NCDOT would require involvement from multiple stakeholder groups.

NCDOT restated that if UNC Charlotte and UCP desired a new project corridor to take traffic off NC 49, they could ask the City and CRTPO for their input. There are several constraints in the area: the Blue line, UNC Charlotte campus, railroad, developments, etc.

CRTPO must forward a concept of an alternative NC 49 in the future to avoid long-range fears of future expansion of the route. A new corridor would start with a line on the map. Because of the existing development, there are restrictions along the corridor that leaves NCDOT and CDOT with limited options to disperse traffic. Places that haven't been developed are generally stream and wetland areas. If a potential corridor is identified, it would need to go through the CRTPO process to add to the CTP to be evaluated in their MTP. It would then become a candidate process.

NCDOT will explore wider traffic network, can CRTPO look at a potential alternate network? We have a network that shows all NC 49. NCDOT can model for 2026 conditions to see how the area west of John Kirk Drive functions with and without the project.

CDOT stated that the City hasn't made any decisions of assumptions about future work in this area. Large future projects would be difficult. If UNC Charlotte wants to downgrade a facility, it could limit or prevent future investment.

UCP stated that they wanted to define what they don't want. They probably don't want to limit this project, but the unknowns are out there. UNC Charlotte sees themselves as a loser in this project. Does this project help them in their mission? Does looking 20 years in the future preclude looking 60 years in the future?

Project Aesthetics Concerns:

UNC Charlotte and UCP asked about the possibility of having vegetated medians. NCDOT stated that generally an 8-foot median is required to be planted, noting that anything below 8 feet is generally concrete. The project already includes an extensive multi-use path network, making the project typical wider would increase overall footprint. **UCP** expressed a desire for as many trees as is possible within the median. NCDOT noted that hedges also limit pedestrian crossings, UCP is also concerned about aesthetics. NCDOT will commit to the level of plantings that can be supported with NCDOT policy. UCP wants as much as possible. NCDOT cannot maintain this but will explore to the extent practicable. NCDOT asked if UNC Charlotte has a planting person who could discuss possible solutions. UNC Charlotte will provide a contact to NCDOT.

UNC Charlotte and UCP asked for a version of the design that shows median areas of 8 foot or higher and can support plantings. NCDOT stated that generally medians smaller than 8 feet do not support plantings without irrigation, which would be a betterment. NCDOT cannot pay for irrigation; but could accommodate irrigation during final design. NCDOT also noted on Hillsborough street, patterned concrete was used to provide an aesthetic treatment. It was noted that while this could be considered, someone else would need to maintain these types of improvements.

CDOT asked if UNC Charlotte would research what materials they would support and be willing to maintain. UNC Charlotte will consider what could be supported and maintained.

U-turn bulbs:

UCP asked if it were possible to use an apron on the exterior of the bulb to make the U-turn bulb look smaller. NCDOT stated that they can explore this potential option, stating that it is difficult to implement in a hard turn. NCDOT stated that they will explore areas to minimize U-turn bulbs. NCDOT will need to plan for pedestrian encroachment and to offer flexibility in materials and design. It was discussed that if land uses along the corridor are changed, the bulb size could be re-examined. Coloring/texturing of the U-turn bulbs were discussed as a possible aesthetic enhancement. NCDOT sated they will explore this potential option during the design phase.

UCP asked if the intersection at John Kirk Drive would have mountable curbs for special events.

NCDOT noted the difficulty in using mountable or removable features with a vegetated median. The department noted that, with no raised median, people will try to mount to median, which has the potential to impact pedestrian safety. UNC Charlotte agreed this option did not require future evaluation.

Speed management:

UNC Charlotte asked if the speed limit could be lowered outside the project limits. NCDOT will elevate the question to explore this further. UNC Charlotte also asked if the speed limit could be reduced below 35 mph. NCDOT will research this question further. UNC Charlotte noted that there were high school students on campus on Tryon side of campus.

UNC Charlotte and UCP asked if additional crossing could be installed. NCDOT stated that there are no additional safe and practical places to add crossings.

UNC Charlotte and UCP asked about accommodation for CATS (Charlotte Area Transit System). NCDOT stated that the department is working with CATS on bus stop locations. NCDOT asked about UNC Charlotte's pedestrian network plans for areas north of NC 49. This was discussed further. UCP expressed a belief that students will not use Z crossings associated with RCI.

NCDOT stated that students will see greater comfort in using the pedestrian signal crossings. One option discussed is to make pedestrian crossings signal pedestrian operated or active for certain cycle times during the day. It was expressed that pushing the signal functions just as a car pulling up to the light. It was also noted that the timing of vehicles to go through intersections is longer than pedestrian crossing times.

UNC Charlotte and UCP asked about lighting approaches. CDOT stated that normally that would be a City betterment initiative. The City of Charlotte will include UNC Charlotte in this discussion as final design becomes closer, gathering their input on potential lighting approaches. Possible approaches include pedestrian lighting and street lighting.

It was discussed that construction phasing will be developed mainly by the contractor, will reduce Mallard Creek elevation at NC 49 by approximately 12 feet. NCDOT will not close the old Back Creek intersection of NC 49 until the relocation of BCCR (Back Creek Church Road) is completed. The anticipated ROW date is 2021, let is anticipated to take place in 2023.

Questions arose regarding whether the project will generate any funding for public arts. CDOT will verify whether the project will generate any funding for public arts.

Actions Items:

- HNTB will supply UNC Charlotte with the requested roadway typical with a multi-use path included, with a median of 8 feet or higher that can support plantings. UNC Charlotte will then determine if they wish to plant trees on both sides of the multi-use path.
- NCDOT will explore approaches that encourage pedestrian crossing usage.
- NCDOT will coordinate with Charlotte EMS to determine their vehicle needs to service UNC Charlotte campus.
- NCDOT will develop an approach to examining the wider transportation network, based on issues discussed
- NCDOT will research if the speed limit through the project could be reduced below 35 mph.
- CDOT will determine if the proposed project will generate any funding for public arts.
- UNC Charlotte will provide information on proposed plantings they would support.
- A draft environmental document is to be completed by the end of August and finalized by the end of September.
- The next steps in design will take place once there is a signed environmental document.
- Tobe Holmes will send out draft action items with proposed timelines for these deliverables.

Please direct any comments or questions about the meeting summary to Wilson Stroud (919-707-6045, wstroud@ncdot.gov), or Ken Gilland (919-424-0486, kgilland@hntb.com).

WS/kg

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

November 21, 2019

Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widening of Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County
November 4, 2019 6:00 P.M.

Meeting Purpose: To coordinate with identified HOAs in and around the project study area, and discuss the improvements associated with U-5768.

HOA Meeting Attendees

Greg McKoy	Villages of Back Creek	president.vbchoa@gmail.com
Matthew Grossman	Villages of Back Creek	matt@gowithredrock.com
Bill Munley	Villages of Back Creek	Bmurley1@verizon.net
Bahaa Korjie	Back Creek Church I	BahhaKorjie@gmail.com
Selina Stewart	Back Creek Chase	info@backcreekchase.com
Travis Roseboro	Back Creek Chase	Backcreekbc1@gmail.com
Anna Smith	University Commons	AF46Smith@aol.com
Gary Smith	University Commons	AF46Smith@aol.com
Alisha Grant	University Commons	Alishagrant87@gmail.com
Shantel Ward	Old Stone Crossing	Sbutler0820@gmail.com
Willie D. Fletcher	Old Stone Crossing	williedf@yahoo.com
Chanele Jackson	Back Creek I HOA	Chjackson19@gmail.com
Regina Solomon	The Reserve at Back Creek	Rsolomons2001@hotmail.com
Robyn Lowery	Newell Place	robyncro@gmail.com
Darlene Heater	University City Partners	dheater@universitycitypartners.org
Tobe Holmes	University City Partners	tholmes@universitycitypartners.org
Mark Reynolds	College Downs (CDCA)	mreynoldsS5555@gmail.com
Keith Bryant	CDOT	kbryant@ci.charlotte.nc.us
Stuart Basham	NCDOT – Div. 10	slbasham@ncdot.gov
Kristina Solberg	NCDOT – PMU	Klsolberg1@ncdot.gov
Wilson Stroud	NCDOT – PMU	wstroud@ncdot.gov
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Wilson Stroud began the meeting with introductions. Stuart Basham described the U-5768 project and its history. Jahmal Pullen discussed the background behind the decision to close the existing at-grade crossing at Back Creek Church Road (BCCR). Keith Bryant discussed how the realignment of BCCR was an integral component of CDOT's Eastern Circumferential Road (ECR). Stuart discussed the proposed typical sections and connectivity improvements associated with the project. Jim Dunlop discussed the proposed intersection improvements associated with the Reduced Conflict Intersection (RCI). It was noted that environmental studies had been completed and that it was anticipated that the State Environmental Analysis/Finding of No Significant Impact (SEA/FONSI) would be signed in November.

Following the presentation, there was an open discussion period. Topics discussed and NCDOT responses developed during and after the meeting are summarized below.

1. Concerns about safety in the proposed park.

NCDOT/CDOT response: Lighting and other traditional crime prevention measures will be considered during the safety and access decision making process for the proposed park and this concern will be shared with Mecklenburg County Parks and Recreation officials.

2. Concerns regarding community safety after construction of the proposed improvements. Specifically, concerns regarding the proposed signalized intersection to be located right behind their neighborhood. Several residents expressed concern about potential petty crimes and panhandling may occur in the neighborhood.

NCDOT/CDOT response: There will be a continued opportunity for residents to express specific concerns to CDOT and NCDOT during the subsequent engineering and design processes for this project. Please refer to the NCDOT and CDOT comments included in this summary for more information as the project moves forward.

3. Requests for creating a cul-de-sac on BCCR where the railroad crossing removal is proposed, in lieu of the currently proposed guardrail barrier. Another advocated for a more attractive/aesthetically appealing vehicle turn-around. This was suggested to include landscaping in the aesthetic design in lieu of a barricade aesthetic and traditional hazard markers. These suggestions will be considered and evaluated as final design moves forward.

NCDOT/CDOT response: It is anticipated that a cul-de-sac would have minimal impacts to the area, and NCDOT and CDOT support the HOA members' request for a better aesthetic associated with the project. The project team will continue to review options during final design.

4. Concerns over the noise and vibration associated with the railroad track. One HOA representative requested that landscaped berms be installed for a buffer from train noise and vibration. Jahmal stated that the noise and vibration associated with double tracking the railroad has been assessed during the environmental

phase of project P-5208 and minimization steps associated with the increased railroad traffic had been done at that time. No additional measures will be taken to address train noise or vibration caused by Norfolk Southern railroad.

NCDOT/CDOT response: Earthen berms require a significant amount of space to accommodate them and the removal of vegetation, depending upon their size and the earthwork needed to accommodate them. Mitigation of train noise is outside of the scope of the project, as this project does not propose to alter the existing rail line. It is also important to note that berms would not reduce vibration effects from trains. Additionally, construction of berms of a sufficient height to dampen the noise would likely be so large that they would need to remove the existing tree canopy (see graphic below) within the North Carolina Railroad Right-of-Way (NCRR ROW), which would not likely be approved by the NCRR.

It was noted by NCDOT during the meeting that the top allowable speed of the passenger train from Charlotte to Raleigh is 79 miles per hour (mph). Subsequent to the meeting, NCDOT staff verified that the maximum speed at the BCCR crossing and the McLean Road crossing is 79 mph. The anticipated maximum speed of passenger trains at both crossings (McLean Road and BCCR) is 70 to 79 mph, with freight trains' speeds at these crossings anticipated to be less than those of the passenger trains.

5. Concerns that the proposed realignment of BCCR (which will provide a grade-separated crossing of the railroad) and the anticipated increase in train traffic might encourage more motorists residing southwest of the project area to use McLean Road/ Faires Farm Road/Hanberry Boulevard to access NC 49. This would avoid the at-grade rail crossing on McLean Road near its intersection with Old Concord Road. NCDOT staff noted that the department had examined options at the McLean Road crossing, but had not found a way to improve that crossing without requiring a number of impacts and relocations.

NCDOT/CDOT response: The City of Charlotte collected vehicular volume counts and speeds on Hanberry Boulevard just north of St. Joseph Drive in 2019. Vehicular volumes at the station location were 3,100 vehicles per day (vpd), with an 85th percentile speed of 31 mph. The vehicular volumes just west of BCCR collected in 2012 were 3,800 vpd. No vehicular speed data was collected during the 2012 study in the area. NCDOT is presently updating the traffic forecast for the project study area, and this information will be used to develop the final project design.

6. Questions were raised about the traffic, noise, and community studies that were conducted for the project. The HOA members also asked if traffic and noise studies will be performed for the scenario under which the McLean Road railroad crossing is closed for train crossings.

NCDOT/CDOT response: The full environmental document for the project will be available for review upon its final approval in November 2019. Additional information, including major technical memos and traffic forecasts, will be available for reference and are available upon request. The project team have provided the meeting invitees the Community Impact assessment and meeting materials with this summary. Project reports (including noise and traffic analyses) and the SEA/FONSI document are available on the project website https://publicinput.com/nc-49-widening-charlotte.

With the potential diversion from McLean Road to Hanberry Boulevard, the traffic volumes and vehicle speeds would not be high enough to result in a notable increase in traffic noise for residences along Hanberry Boulevard. With a posted speed limit of 25 miles per hour and the limited traffic-carrying capacity of this two-lane residential street, noise levels would increase by no more than three decibels (db) even if traffic doubled. A change in noise levels of three db or less is barely detectable to the human ear. For this reason, additional analysis of traffic noise is not required.

7. A request was made for a visualization of BCCR under future conditions.

NCDOT/CDOT response: NCDOT will provide a master public meeting map outlining the extent of the project's roadway improvements, including the proposed NC 49 improvements and the proposed BCCR realignment as one map.

8. Concerns on the impact of the project on area property values.

NCDOT/CDOT response: Property value fluctuations to the surrounding area of a project are not addressed by NCDOT. Property values depend on many factors; with any transportation improvement project there will be positive and negative effects.

Property value changes are addressed on an individual basis by Right of Way agents with owners of property that will be directly impacted by the acquisition of rights of way or easements. It is not anticipated that the U-5768 project will result in direct impacts or relocations of homes within the HOAs.

9. Requests that CDOT provide traffic calming devices for Hanberry Boulevard. Keith asked if the community would make a formal request, as the City had recently increased funding opportunities for traffic calming measures.

NCDOT/CDOT response: In November 2018, the City of Charlotte Council approved an update to the current Neighborhood Traffic Management policy to fund traffic calming measures and to lower the threshold required to quality for them. Additional information about this is available on the City of Charlotte's website for this policy located at: https://charlottenc.gov/Transportation/Programs/Pages/TrafficCalming.aspx.

10. Questions were raised about the recent installation of manholes and fencing along the proposed realignment corridor for BCCR. CDOT and NCDOT staff were not aware of this utility work, but would determine the extent and nature of the construction and include that information with the meeting summary.

NCDOT/CDOT response: Information available from Charlotte Water informs that the City of Charlotte did not install the manholes in this area. The height of the manholes was not set based upon the future grade of the ECR/realigned BCCR. Rather, when manholes are installed in unimproved areas, such as this one, they are installed higher than existing ground so that they can easily be found should vegetation grow up around them. The future grade of the ECR in this location will be much closer to existing grade and will actually begin to cut down toward the elevation established at the railroad grade separation (bridge).

11. Request for noise walls, particularly near the Village of Back Creek subdivision. There was also support for a privacy barrier on the private property portion of the shared-use path.

NCDOT/CDOT response: NCDOT established the NCDOT Traffic Noise Abatement Policy to comply with Federal Highway Administration (FHWA) rules regarding traffic noise (found in Title 23 Code of Federal Regulations Part 772 - "Procedures for Abatement of Highway Traffic Noise and Construction Noise"). These documents require that traffic noise analyses be performed for all "Type I" projects, which are essentially all projects involving construction of new highways or widening existing highways. NCDOT uses computer models to predict future noise levels along proposed highway projects and, when the predicted traffic noise levels reach certain thresholds, our policy requires that noise reduction methods be considered. If the noise reduction measures meet feasibility and reasonableness criteria detailed in our policy, they are implemented into highway plans and constructed as part of the highway project. All noise reduction methods must remain within the constraints of the feasibility and reasonableness criteria defined within our policy.

A detailed traffic noise analysis was completed for the U-5768 project which included the Villages at Back Creek neighborhood. The lack of a noise wall in any particular area indicates that either noise levels did not reach levels high enough to require consideration of a noise wall or the area did not meet the feasibility and reasonableness criteria noted above and, therefore, a noise wall was not justified for construction.

The minimum residential exterior threshold level that requires noise reduction consideration – either 66 decibels or a minimum increase of 10 decibels over existing levels – would occur at several residences adjacent to the realigned

BCCR. Consequently, noise reduction in the form of a noise wall was considered for this neighborhood.

One of the main factors in noise wall justification is the effect of secondary noise sources (i.e. non-roadway traffic noise) on the effectiveness of a noise wall. Although a noise wall would be effective at reducing *roadway* traffic noise from BCCR, the amount of *train* noise from the NCRR rail line would considerably diminish the overall effectiveness of a noise wall, rendering it not acoustically feasible under the NCDOT noise policy. Therefore, a noise wall for the Villages at Back Creek is not proposed.

12. Requests for a pedestrian grade crossing at BCCR.

NCDOT/CDOT response: NCDOT is not currently pursuing pedestrian crossings at BCCR. Pedestrian crossing distance for residents of Back Creek Chase to destinations across NC 49 would be increased by approximately 0.6 miles in each direction, and this safer crossing that would not require crossing the NCRR ROW. Additional information about the project, including the subsequent environmental document (upon its signature) will be made available for reference.

During the meeting, NCDOT Congestion Management staff stated that they expect traffic volumes on Hanberry Boulevard east of the new realigned BCCR (through University Heights) to decrease as a result of the project. In existing traffic conditions, residents of the neighborhoods located south of the railroad tracks and west of existing BCCR frequently use a combination of Faires Farms Road and Hanberry Boulevard (through University Heights) to get to/from BCCR, NC 49, and I-485. With the realignment of BCCR, this traffic will no longer travel along the section of Hanberry Boulevard through University Heights neighborhood, as this traffic will use realigned BCCR to access NC 49 and I-485.

13. Questions and discussion regarding traffic volumes on Hanberry Boulevard through the University Heights neighborhood, with concerns that there may potentially be an increase as a result of the realignment of BCCR.

NCDOT/CDOT response: It was noted that the traffic volume forecast was prepared in 2015 shows an increase in traffic volumes on Hanberry Boulevard in the Build (project creation) scenario for this corridor, compared to the No-Build (no project creation) scenario. The 2015 traffic forecast report accounts for traffic volumes generated by Back Creek Christian Academy located at Back Creek Church, which likely diverted some traffic onto Hanberry Boulevard in Build conditions due to the closure of the BCCR railroad crossing. However, the Academy recently relocated to a new campus outside of the study area. An updated traffic forecast report for the entire project study area is currently underway and will take into account the relocation of Back Creek Christian Academy. NCDOT will review all traffic data prior to initiating final design.

There was feedback received during and after the meeting from residents wanting to be included in the subsequent design decisions for the project, with an opportunity to provide comments and get questions addressed. While no additional HOA meetings are anticipated at this time, a newsletter will be sent to all stakeholders on the project contact

list once the environmental document is signed, and NCDOT will continue to accept comments throughout project development.

Please direct any comments or questions about the meeting summary to Kristina Solberg (919-707-6262, klsolberg1@ncdot.gov), Keith Bryant (980-214-7076, kbryant@ci.charlotte.nc.us), or Ken Gilland (919-424-0486, kgilland@hntb.com).

KS, KB/kg

Appendix D: NEPA/Section 404 Merger Process Coordination

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

June 13, 2018

Memo to: Merger Team

From: Wilson Stroud, Project Manager

Project Management Unit

SUBJECT: STIP Project U-5768 - Supplemental Information for CP1 and CP2 for Merger Team Consideration (proposed NC 49 and Back Creek Church Road improvements in Charlotte, Mecklenburg County)

During the November 16, 2017 Section 404/NEPA Merger Team CP1 and CP2 meeting for STIP Project U-5768, potential realignment alternatives for Back Creek Church Road (BCCR) were discussed. These options included the original route reserved by the City of Charlotte for the corridor ("Yellow" option), as well as two other corridors that were evaluated in 1989 as part of the Eastern Circumferential Road (ECR) study: (1) the "improve existing" option ("Blue" option) and (2) an option that would follow John Kirk Drive north of NC 49 and John Russell Road south of NC 49 ("Orange" option).

The Merger Team requested additional written documentation be submitted to support CP1 and CP2 concurrence. The supplemental information should include:

- written documentation for each of the ECR options (i.e., Blue and Orange options) as they relate to the proposed realignment of BCCR under project U-5768;
- revisions to the Orange option in light of current development;
- new alignment north of Back Creek be considered (i.e., "Purple" option, introduced below); and
- BCCR logical termini analysis.

Based on the Merger Team's requests during the CP1/CP2 meeting, NCDOT has:

- revised the "Orange" option to improve potential feasibility, following existing neighborhood street rights of way in an effort to minimize impacts to existing residents. (Note that the proposed BCCR realignment typical section would exceed the existing neighborhood street typicals.);
- developed a "Red" option, which utilizes the railroad grade separation constructed as part of project P-5208, following parts of the "Yellow" and "Orange" options;

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- developed a "Purple" option, which is similar to the "Yellow" option, but which widens more of existing BCCR; and
- analyzed the project's logical termini.

The supplemental information presented in this memorandum will assist the Merger Team in determining which of these options should be included for detailed study and which should be screened out of future consideration. USACE will require detailed study of all potential alignment options unless it can be demonstrated that those alternatives:

1) Do not meet the Purpose and Need or
2) Are not practicable from a design perspective or
3) Are not potentially the least environmentally damaging practicable alternative (LEDPA)

This supplemental information will also support the evaluation for logical termini.

All five of the above options (Yellow, Blue, Orange, Red, and Purple) are shown in Figure 1 and summarized below. Please note that these reviews are based on conceptual alignments and these options were evaluated using best engineering judgement. Preliminary designs will be developed for all alternatives carried forward for detailed study, and avoidance and minimization measures will be explored for each alternative.

1. Discussion of Operability and Geometrics

Blue Option. The Blue option would improve existing BCCR and construct a new location spur from Pavilion Boulevard to connect with Mallard Creek Church Road north of NC 49 (see Figure 1). Blue option 1 would require a new grade separation of BCCR over existing North Carolina Railroad/Norfolk Southern Railroad (NCRR/NS) tracks and over NC 49; Blue option 2 would construct a new railroad bridge to grade separate the NCRR/NS tracks over NC 49.

There are substantial operational issues associated with both Blue options. In Blue option 1, the structure required to span both NCRR/NS and NC 49 would require more than 600 feet of vertical realignment on each approach, which would effectively remove access to the northernmost Back Creek Church parking lot south of NC 49 and the 7-Eleven north of NC 49. Access would also be changed to University Meadows Elementary School, University Meadows Neighborhood Park, and the Pavilion at UC Apartment Complex north of NC 49. It would also impact the connection between existing BCCR and Hanberry Boulevard south of NC 49.

To maintain a connection between NC 49 and Pavilion Boulevard/BCCR, a new roadway connecting to NC 49 via Sams Lane (not shown in the figure) in the northwest quadrant of the intersection would be required. A quadrant roadway would not be feasible on the east side of Pavilion Boulevard/BCCR due to the proximity of the interstate ramps or the south side of NC 49 due to the proximity of the railroad. This connection would force northbound BCCR travelers to drive over the railroad and NC 49 bridges, then back track an additional

2,200 feet to access NC 49 via a full-movement intersection at Sams Lane. This quadrant roadway would result in impacts to an unnamed tributary to Mallard Creek, and it could potentially disrupt operations at the Back Creek Centre shopping center, both of which are on the north side of NC 49.

As noted in the CP1 and CP2 Merger Packet, the P-5208 Environmental Assessment (EA) previously considered and dismissed two alternatives to grade-separate BCCR over (Blue option 1) and under NCRR/NS (Blue option 2) due to topographical constraints, access requirements, and potential impacts to nearby residential and business properties. Regarding Blue option 2, the P-5208 EA stated:

> "A railroad bridge over Back Creek Church Road (SR 2827) would require the road to be lowered and, most likely, the railroad to be raised. The tracks would need to be nearly 25 feet above the road. Allowable grades used in railroad design are flatter than those for roadways. The railroad track construction limits could extend one-half mile or more beyond each end of the bridge. This could potentially require reconstruction of the railroad bridge over I-485 which would also require a temporary detour for trains during construction. Lowering Back Creek Church Road (SR 2827) would also require NC 49 to be lowered to intersect with Back Creek Church Road (SR 2827), further expanding the footprint of construction. The required roadway and railroad work would be much more extensive and have much greater impacts than those described for a roadway bridge. For these reasons both alternatives were eliminated from further study."

As noted above, Blue option 1 and Blue option 2 would also require the construction of a connecting roadway on new alignment from Pavilion Boulevard to Mallard Creek Church Road north of NC 49. This connecting roadway would also impact the parking area of University Meadows Elementary School, University Meadows Neighborhood Park, University Village Shopping Center, an unnamed tributary of Mallard Creek, a Duke Energy transmission line (multiple crossings), and operations of an active quarry (Martin Marietta Quarry).

Orange Option. The Orange option proposes a new location facility that extends from the intersection of NC 49 and John Kirk Drive southward to connect with existing BCCR south of Timber Ridge Road. This option would also require improvements to existing John Kirk Drive north of NC 49 to its intersection with Mallard Creek Church Road. This option would require a new bridge over NCRR/NS and Old Concord Road south of NC 49.

As noted above, the Orange option was revised after the Merger meeting. The existing conditions at the time the Orange option was originally developed for the 1989 ECR study did not include the development which is currently present, notably several residential neighborhoods. Therefore, at the request of the Merger Team, a route was developed to represent the Orange option to be more compatible with the current conditions and include a direct connection to BCCR. The Orange option was aligned between BCCR and John Kirk Drive to follow existing neighborhood street rights-of way in an effort to minimize impacts to existing residents and avoid the neighborhood stormwater retention pond. These neighborhood streets include Amherst Glen Drive and Conifer Circle. It was noted that the

high number of residential relocations would substantially add to the cost of this alternative. (*Note that the proposed BCCR realignment typical section would exceed the existing neighborhood street typicals).* The Orange option also includes a direct connection to BCCR. However, to access NC 49, residents along existing BCCR north of Back Creek would either have to drive through Hanberry Blvd (local collector), which is not designed for such traffic, or via a circuitous route down BCCR to the Red option, greatly reducing their mobility along the corridor.
These revisions are displayed in Figure 1.

This option would pose several operational issues and result in additional undesirable impacts. Most of the operational issues would be related to the required grade separation with NCRR/NS. There is not enough space between the rail crossing and NC 49 to accommodate an at-grade intersection at NC 49. To construct an at-grade separation, the grade of BCCR would have to be raised by several feet. Old Concord Road and University Walk Circle would also have to be elevated on retained fill. Raising the surrounding roadways would likely impact access to several adjacent commercial and institutional properties.

John Kirk Drive currently traverses the eastern border of the University of North Carolina at Charlotte (UNCC). Improvements required along John Kirk Drive under the Orange option would likely not be compatible with UNCC's overall transportation plan. The University is currently designing upgrades to John Kirk Drive to enhance its internal traffic operations and provide a more bicycle and pedestrian friendly campus environment. This alignment option would not be compatible with their vision.

Yellow Option. The Yellow option would utilize the railroad grade separation constructed for project P-5208 and the ECR corridor protected by the City of Charlotte. This was the preferred option from the 1989 ECR study. There are no current operational issues associated with this option.

Red Option. The Red option would utilize the grade separation constructed for project P-5208, similar to the Yellow option. However, the Red option follows a more westerly route south of Hanberry Boulevard, thereby minimizing stream impacts, joining the Orange option north of the Wyndham Place subdivision and connecting with existing BCCR south of Timber Ridge Road. The Red option was identified as a potential alignment at the Merger meeting, and is included in this document at the Merger Team's request.

To access NC 49, residents along existing BCCR north of Back Creek would either have to drive through Hanberry Blvd (local collector), which is not designed for such traffic, or via a circuitous route down BCCR to the Red option, greatly reducing their mobility along the corridor.

Purple Option. The Purple option was also developed at the request of the Merger Team and would cross Back Creek before making a westerly turn to join the Yellow option. The Purple option would utilize more of the existing BCCR alignment than the Yellow Option,

thereby reducing stream impacts. The Purple option would utilize the grade separation constructed for project P-5208, similar to the Yellow and Red options.

This option would impact lands set aside by Mecklenburg County for a park and greenway hub (universitycitypartners.org/a-park-in-our-future-county-buys-33-4-acres-near-future-highway-and-uncc/). The option was further reviewed at the request of USACE and CDOT to determine if the design could avoid superelevated curves (i.e., banking), which are not compatible with multimodal accommodations. Based on a preliminary review, it appears that designs could avoid banking; however, this will be verified if the option is carried forward for detailed study.

The purple option would tie in to the existing BCCR north of Back Creek. Existing BCCR would be widened to the proposed southern terminus of the Yellow option to allow for improvements past existing subdivisions. It is assumed that the widening of existing BCCR would be to the west to avoid any potential impacts to the Back Creek stream mitigation site, located on the east side of the BCCR crossing of Back Creek.

2. Discussion of Impacts

Impacts for the five BCCR alignment options discussed above are summarized below in Table 1. Please note that these impacts were determined for a 200-foot corridor. Stream and wetland impacts for the Yellow and Purple options are based on field delineated streams and wetlands. Impacts for the Red, Orange, and Blue options were supplemented with National Hydraulic Dataset (NHD) and National Wetlands Inventory (NWI) data where these options extended beyond previously surveyed areas. If these options were carried forward, additional surveys would be required.

Options carried forward for detailed study will have revised impacts based on the proposed slopestakes, buffered as appropriate for the design phase. In addition, any alternative carried forward for detailed study will be studied for potential avoidance and minimization measures through the Merger Process.

Table 1. Preliminary Impacts Summary (200-foot buffer along proposed centerlines)

Option	Yellow	Blue 1[1]	Blue 2[2]	Purple	Orange	Red
Stream Impacts (linear feet)	2,220	1,050		1,610	440	490
Wetland Impacts (acres)	1.0	1.0		1.0	0	1.0
100-year Floodplain Impacts (acres)	1.61	1.79		1.74	1.48	2.08
School Impacts	0	Univ. Meadows School, Back Creek Christian Academy	Back Creek Christian Academy	0	UNCC	0
Residential Relocations	6	42		4	110	127
Residences with Access Impacts	0	0		0	76	58
Business Relocations	0	1	2	0	3	0
Other Impacts	—	Operational issues at Pavilion/Mallard Creek Church Road	Approximately 1 mile of railroad grade work (I-485 RR bridge; temporary railroad detour); Lowering BCCR/ NC 49 intersection; Operational issues at Pavilion/Mallard Creek Church Road	Proposed County Park	—	—

[1]-BCCR with bridge over NC 49 and Railroad
[2]-Railroad bridge over BCCR

Residential impacts are presented in Table 1 in two ways. "Residential relocations" refers to those residences directly impacted within the project corridor. "Residences with access impacts" refers to homes that would be cut off from the remainder of the subdivision, thus requiring new or modified access roads.

Because the Red option shows lower stream impacts than the yellow and purple options, USACE requested additional information about this option. The City of Charlotte submitted

a letter to the USACE stating that the Red option (and Orange option) is not consistent with multiple City policies, guidelines, and goals for protecting and preserving existing neighborhoods (May 7, 2018 letter is attached to this memorandum). In addition, NCDOT compiled a high-level right of way acquisition cost estimate for each option based on GIS data (see Table 2).

For the right of way cost estimates, NCDOT used parcel data to determine the approximate land acquisition value for properties along the Yellow, Purple, and Red options. The sum of the total value of each parcel and structure within each corridor is represented by the high numbers in the Table 2 estimates. The low estimates are based on how much of each parcel is within each corridor. If more than 25% of a parcel was within any given corridor, it was assumed the entire parcel would be acquired. Otherwise the value was calculated as a percentage of the total parcel value. Costs include land value and assessed building value from the Mecklenburg County GIS file (May 15, 2018 download). Fair market value for the parcels may be higher than the values shown in Table 2.

It is also noted that since the Merger Team meeting (November 2017), the draft hydraulics report (HNTB, January 2018) has been completed and included a recommendation for a bridge to avoid impacts to the 100-year floodplain at the new crossing of Back Creek. A bridge at that location would also allow for a proposed greenway to cross under the realigned BCCR, consistent with Mecklenburg County plans. For the Yellow option, this would require a bridge approximately 155 feet long. To avoid impacts to the 100-year floodplain and accommodate the proposed greenway for the Red option, a 450- to 550-foot bridge would be required, as the 100-year floodplain is substantially wider in that area. The substantially longer bridge span would contribute to higher construction costs associated with the Red option.

Opportunities for reducing stream and floodplain impacts for the options to be carried forward for detailed study will be explored in areas with stream and floodplain crossings.

Table 2. Revised Preliminary Impacts Summary (200-foot buffer along proposed centerlines) for Yellow, Purple, and Red Options

Option	Yellow	Purple	Red
Residential Relocations	6	4	127
Cost of ROW (homes and parcels within corridor	$2.8 to $5.7 Million	$6.0 to $6.1 Million	$18.0 to $21.6 Million

3. Summary and CP 2 Recommendations

Both the Red and Orange options would reduce mobility for residents on BCCR just south of NC 49, as well as stakeholders who visit Back Creek Christian Academy or Back Creek Church.

For the reasons stated above, NCDOT does not feel that the Blue and Orange options are practicable from a design standpoint. The Blue options would have issues with crossing NCRR or NC 49. The Orange and Red options would have a substantial number of residential relocations, which would greatly increase the cost of this alternative. Although the Orange option would likely result in less stream impacts than the other options, based on this high level of analysis, NCDOT concludes and USACE agrees that this option is not practicable due to the high number of impacts to the human environment (including relocations and access impacts), as well as the much higher costs.

Based on the above analysis, NCDOT and USACE recommend that the No Build Option, the Yellow Build Option, and the Purple Build Option be carried forward for detailed study. The revised CP2 concurrence form is attached.

4. Southern Terminus of Back Creek Church Road Improvements

During discussions with NCDOT prior to the CP1/CP2 Merger Meeting, USACE asked if traffic queuing on the relocated BCCR would extend beyond the proposed southern limits of the project by the design year (2040). The March 2017 Traffic Analysis Technical Memorandum for U-5768 included an analysis of queue lengths for the various build alternatives. Based on that analysis, maximum queue lengths were developed (see Table 3. While the preliminary analysis showed queue lengths for some scenarios would extend past Hanberry Boulevard for northbound BCCR traffic in the design year, in no case did the maximum queue length extend to the project terminus at the intersection with existing BCCR. Thus, NCDOT and USACE conclude that the proposed study area as shown in Figure 1 is appropriate.

Table 3. Traffic Queue Data for U-5768 Southern Terminus

Alternative from March 2017 Analysis	TransModeler 95% Maximum Queue on Northbound BCCR (feet)	Does queue spill back past Hanberry Blvd?	Does queue spill back past the connection to existing Back Creek Church Rd (near Rosemallow Rd)?
2040 Build Alt 1 (6-Lane Traditional Widening)	**1,857**	Yes	No
2040 Build Alt 2 (6-Lane Superstreet)	**3,720**	Yes	No
2040 Build Alt 3 (6-Lane Superstreet Hybrid – Partial Median U-Turn intersection at NC 49/Mallard Creek/Back Creek)	**436**	No	No

Source: HNTB North Carolina, PC, March 2017 Traffic Analysis Technical Memorandum for NCDOT STIP Project U-5768

5. CP 1 Recommendations

Purpose and Need. NCDOT presented the following purpose and need statements at the November 16, 2017 CP1 Merger Meeting:

The needs to be addressed by this project include**:**

- N.C. 49 is currently operating at or close to congested levels.
- From 2000 through March 2016, there were six highway vehicle/train crashes at the NCRR/NS at-grade rail crossing on Back Creek Church Road just south of NC 49. Current typical train traffic as reported by Norfolk Southern is 38 trains per day, and train volumes are expected to double in the future, as this crossing is located within the proposed NCDOT Southeast High Speed Rail corridor.
- With the proposed closing of the S.R. 2827 (Back Creek Church Road) railroad crossing at NCRR/NS, the existing network connectivity between the Rocky River area to the south and N.C. 49 would be lost.]
- Traffic volumes and lack of accommodations along N.C. 49 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes. CDOT, UNCC, and University City Partners have cited the need to accommodate pedestrians and bicycles in any proposed improvement.

The purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on N.C. 49 with the goal of achieving an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040), improve safety and enhance train and vehicle operations, and maintain network connectivity. A secondary purpose is to safely accommodate multi-modal uses of the corridor.

Based on comments received at the Merger Meeting and comments received from the USACE after the meeting, the purpose statement has been revised to read:

The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on N.C. 49. Another purpose is to improve safety and enhance train and vehicle operations. The screening criteria for this are:

- **Achieve an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040).**
- **Maintain connectivity within the existing road network.**
- **Safely accommodate multi-modal uses of the corridor.**

Study Area. The project study area associated with the yellow corridor has been revised to reflect NCWRC's request during the team meeting to examine a wider corridor to minimize stream and wetland impacts associated with the proposed BCCR crossing of Back Creek. If the Merger Team agrees with NCDOT's alternatives (CP2) recommendation, this revised study area (shown in Figure 1) will serve as the project study area. If the Merger Team instead concludes that other build alternatives should be carried forward for detailed study, the study area will be expanded to include sufficient area to encompass additional alternative(s).

ws/kg

Attachments: Figure 1

City of Charlotte letter (5-7-18)

Revised CP1 and CP2 forms

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 7, 2018

Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widening of Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County

November 16, 2017 – 3:00 P.M to 5:00 P.M.

Meeting Purpose: To reach concurrence on Concurrence Point 1 – Purpose and Need and Study Area Defined and Concurrence Point 2 – Design Options for Detailed Study

Meeting Attendees

Crystal Amschler*	USACE	crystal.a.amschler@usace.army.mil
Marella Buncick*	USFWS	marella_buncick@fws.gov
Donna Hood*	NCDWR	donna.hood@ncdenr.gov
Marla Chambers	NCWRC	marla.chambers@ncwildlife.org
Renee Gledhill-Earley*	NCHPO	renee.gledhill-earley@ncdcr.gov
Ashley Landis	CDOT	alandis@charlotte.nc.gov
Laura Sutton	NCDOT-CPM	lsutton@ncdot.gov
Beverly Robinson	NCDOT-CPM	brobinson@ncdot.gov
Wilson Stroud	NCDOT-CPM	wstroud@ncdot.gov
Bryan Key	NCDOT-CPM	bckey@ncdot.gov
Jim Harris	NCDOT – Rail Division	jbharris@ncdot.gov
Kumar Trivedi	NCDOT – Engineering & Safety	katrivedi@ncdot.gov
Simone Robinson	NCDOT – Human Environment	strobinson1@ncdot.gov
Mark Staley	NCDOT – Soil & Water Eng.	mstaley@ncdot.gov
Michael Turchy	NCDOT – Natural Environment	maturchy@ncdot.gov
Stuart Basham*	NCDOT – Division 10	slbasham@ncdot.gov
Scott Cole*	NCDOT – Division	scole@ncdot.gov
Eric Seckinger	HNTB	eseckinger@hntb.com
Ken Gilland	HNTB	kgilland@hntb.com
Adam Archual	HNTB	aarchual@hntb.com

*Attended via phone

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND
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1548 MAIL SERVICE CENTER
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Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

NCDOT opened the meeting. USACE made opening remarks concerning recent correspondence with NCDOT that had resulted in new information being added to the Merger meeting materials. The new information primarily addressed other design options to maintain access from Back Creek Church Road (BCCR) to NC 49. USACE/NCDOT pre-meeting discussions also included the appropriate limits of construction along BCCR south of NC 49.

The following summarizes the discussions during and decisions reached at the meeting. Action items and post-meeting notes are denoted in **bold text**.

Concurrence Point 1 Discussion

- Existing Features:
    - NCWRC asked for clarification regarding the path and status of the Back Creek Greenway. HNTB and CDOT responded that the greenway is a long-term Mecklenburg County goal that is currently unfunded. The greenway would roughly parallel Back Creek through the study area, reaching to near I-485 on its east extent. *Note that the Mecklenburg County Parks and Recreation Greenway Plan Update (2008) listed the Back Creek Greenway in their 10-Year Action Plan.*
    - Several parties spoke to the dangerous condition at the existing BCCR at-grade railroad crossing near NC 49, including SHPO, NCDOT-Division 10, and NCDOT-Rail Division. NCDOT noted the dangerously short throat on BCCR between the track and the traffic signal at NC 49. NCDOT-Rail Division is not in favor of leaving the crossing open and has worked for more than 20 years to close this crossing. Norfolk Southern (NS) strongly supports closing the crossing.
- Purpose and Need
    - NCDOT presented the following preliminary purpose and need statement:

*The needs to be addressed by this project include**:***

- *N.C. 49 is currently operating at or close to congested levels.*
- *From February 2000 through March 2016, there were six highway vehicle/train crashes at the NCRR/NS at-grade rail crossing on Back Creek Church Road just south of NC 49. Current typical train traffic as reported by Norfolk Southern is 38 trains per day, and train volumes are expected to double in the future, as this crossing is located within the proposed NCDOT Southeast High Speed Rail corridor.*
- *With the proposed closing of the S.R. 2827 (Back Creek Church Road) railroad crossing at NCRR/NS, the existing network connectivity between the Rocky River area to the south and N.C. 49 would be lost.*
- *Traffic volumes and lack of accommodations along N.C. 49 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes. CDOT, UNCC, and University City Partners have cited the need to accommodate pedestrians and bicycles in any proposed improvement.*

NCDOT presented the following preliminary purpose statement

The purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on N.C. 49 with the goal of achieving an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040), improve safety and enhance train and vehicle operations, and maintain network connectivity. A secondary purpose is to safely accommodate multi-modal uses of the corridor.

- USACE requested that the format of the proposed purpose statement be changed to include screening criteria in bullets.
- USACE requested that "network connectivity" be changed to specifically address BCCR connection to NC 49.
- NCDOT and HNTB revised the purpose statement during the meeting to read:

The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on N.C. 49. Another purpose is to improve safety and enhance train and vehicle operations.
The screening criteria for this are:

- *Achieve an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040).*
- *Maintain connectivity from N.C. 49 to Back Creek Church Road.*
- *Safely accommodate multi-modal uses of the corridor.*

- The Merger Team acknowledged that the separation of train and vehicle traffic is an important component of the project.
- The Merger Team reached verbal agreement on Purpose and Need.
- **Update 11-17-17: USACE noted in a follow-up e-mail that the statement as revised during the meeting may be too specific and asked that it be changed to "maintain connectivity within the existing road network." The CP1 concurrence form has been revised accordingly (see attached supplemental information).**

- Study Area
  - NCWRC requested a slight expansion of the proposed study area to the west to allow for a potential reduction in stream impacts along Back Creek, as related to the proposed realignment of BCCR. **Post meeting note: The study area has been expanded, per this request (see attached, Figure 1).**

- Discussion of the study area was postponed until later in the meeting, after a discussion of alternatives to be carried forward (see additional discussion below).

Concurrence Point 2 Discussion

- It was noted the PowerPoint presentation included additional information, regarding other CP2 alternatives for the proposed realignment of BCCR, based on USACE/NCDOT discussions that had taken place before the meeting. That information was not provided in the Merger packet and therefore was new information for the team to consider. **Post meeting note: NCDOT sent the presentation to meeting invitees and attendees on 11-17-17.**
- NCDOT presented the following CP2 alternatives in the meeting (please refer to "Slide 31," attached):
  - ***No-Build Alternative***
  - ***Build Alternative A:*** *Best-fit widening along NC 49, relocation of S.R. 2827 (Back Creek Church Road) to NC 49 at S.R. 2833 (Mallard Creek Church Road), traffic flow and connectivity improvements to S.R. 2939 (Old Concord Road) and Thomas Combs Drive. A grade separation will be evaluated for N.C. 49 over S.R. 2833 (Mallard Creek Church Road)/Relocated Back Creek Church Road.*
  - ***Additional Build Alternatives:*** *NCDOT also presented two alternatives considered during feasibility studies for the proposed Eastern Circumferential Road (ECR). These alternatives included an improve existing alternative for BCCR (the "blue" option, and an alternative that provided an alternative connection to BCCR to the west ("orange" option).*
- USACE requested that additional written documentation be provided for the blue and orange options for to the proposed realignment of BCCR. It may be possible that these design options are screened out at CP 2; however, it was agreed that more supporting information is required to demonstrate whether these alternatives:

  1) meet the Purpose and Need

  2) are practicable

  3) are potentially the least environmentally damaging practicable alternative.
- NCWRC asked for clarification regarding the status of the ECR. CDOT replied that the project is active and is intended to serve as an alternate, or complementary, route to I-485, that they and NCDOT are currently pursuing segments of the project as funding becomes available, and that CDOT is currently constructing improvements to a section of BCCR south of John Russell Road (approximately 1 mile south of the proposed U-5768 study area).

- **Post meeting notes on the ECR and projects that will improve BCCR in the vicinity of the proposed project (see Figure 2, enclosed)**:
    - The following projects are included in the CRTPO 2045 Metropolitan Transportation Plan (MTP):
        1. CRTPO MTP ID No. 3074. Rosemallow Road to Rocky River Road; provide a median divided, 4-lane facility with bike lanes, part on new location, 1.8 miles; Horizon year 2035, not currently funded.
        2. The City of Charlotte will widen BCCR to 3 lanes from Rocky River Road to Scott Creek Church Road, currently funded for construction.
        3. NCDOT project W-5601BK will improve Rocky River Road from Hood Road to BCCR. The project will add turn lanes and install traffic signals at each intersection. The right of way acquisition process for this project is underway, and construction is scheduled to begin in late 2018 or early 2019.
        4. The CRTPO MTP includes six additional ECR segments from Rocky River Road to US 74 in Matthews (ID Nos. 3082, 3090, 3099, 3105, 3112, and 3122). None of these projects are currently funded.
- NCWRC requested that design options for relocated BCCR that reduce stream impacts be examined, specifically in the area of a couple tributaries to Back Creek.
    - NCDOT responded that the proposed BCCR alignment (yellow option) as shown should be considered a "starting point" and that avoidance and minimization measures will be identified and implemented as design proceeds.
- USACE stated that they do not want to be "married" to an alignment and asked if, instead, the yellow option could be presented as a corridor?
    - NCDOT responded that BCCR realignment could be presented as a corridor, with the understanding that avoidance and minimization measures will be pursued.
        - It was agreed all CP2 alternatives would be shown as corridors rather than alignments.
        - **Post-meeting note: each of the CP2 alternatives is shown as a 200-foot corridor in Figure 1, which is included in the attached supplemental information.**
- USACE requested that the orange option be revised to tie to existing BCCR, rather than tying into John Russell Road.
    - CDOT requested that the orange option tie to existing BCCR north of the BCCR widening project that is currently under construction by CDOT (see

attached BCCR/ECR graphic). **Post-meeting note: The orange option has been adjusted to tie to existing BCCR south of Timber Ridge Road, to avoid impacts to the retention pond north of Back Creek, and to reduce impacts to residential neighborhoods (see Figure 1 in attached supplemental information).**

- During the meeting, a new possible option ("purple" option) was discussed. The purple option would utilize more of the existing BCCR alignment than the yellow option. This option utilizes extreme horizontal geometry north of Back Creek that would require superelevated curves (i.e., banking). The City of Charlotte has stated that this corridor needs to provide safe accommodations for pedestrians and cyclists and that their policy is to avoid superelevated curves for facilities with multiuse paths. If flatter curves are used to avoid superelevation, it is likely that this option would either (1) encroach onto Back Creek resulting in greater stream impacts than currently anticipated or (2) encroach onto residential properties to the north. This option would also bisect the County-owned parcel that is planned for development as a park
- During the meeting, the Merger Team asked if it would be possible to construct a grade separation tunnel BCCR under NC 49 and the NCRR crossing. This possibility was discussed in the P-5208 Environmental Assessment (EA). The EA examined and dismissed two alternatives to grade-separate BCCR over and under NCRR/NS due to topographical constraints, access requirements, and potential impacts to nearby residential and business properties.
- It was suggested that a "crossover" alternative for the realignment of BCCR be considered that would follow the yellow option north of Back Creek and the orange alternative south of Back Creek. **Post-meeting note: A new option (red option) has been developed for this concept (see Figure 1 in the attached supplemental information).**
- At the request of the Merger Team, it was agreed **NCDOT will prepare a memorandum, to be distributed with the meeting summary, containing the requested information (see attached supplemental documentation). The Merger Team will review the materials and determine if sufficient information has been provided to allow any of the BCCR realignment alternatives to be removed from further consideration before proceeding with detailed studies.**
- Once the Merger Team has the opportunity to evaluate the additional information and review the revised CP2 form, a decision will be made as to which CP2 alternatives will be carried forward.
- It was noted the alternatives to be removed from further consideration will be addressed (briefly) in the NCDOT SEPA document(s).
- The proposed typical sections for NC 49 and relocated BCCR were displayed, but were only briefly discussed. Both typical sections propose a four-lane divided typical section with bike and pedestrian accommodations.

<u>Concurrence Point 1 Follow-Up Discussion (Study Area)</u>

- Following the above CP 2 discussions, CP1 (study area) discussions resumed.
- Whether to expand the study area to include the orange option was briefly discussed.
    - NCDOT stated a preference to not incorporate the orange option into the study area at this time and to defer a decision on the study area until concurrence has been reached on the alternatives to be carried forward for detailed study.
    - The study area (CP1) will be reassessed for adequacy after CP2 concurrence is reached.
- Logical Termini.
    - During the USACE/NCDOT discussions that took place before the Merger meeting, USACE requested that NCDOT provide information to show that improvements to existing BCCR are not needed south of the location where realigned BCCR will tie into existing BCCR in order to provide an appropriate level of service at the NC49/BCCR/Mallard Creek Church Road intersection.
    - USACE briefly noted during the meeting that additional information will be needed to confirm that the limits of construction along BCCR south of NC 49 going southward towards Rocky River Road are appropriate. **(See attached supplemental information.)**

Post-Meeting Notes:

As requested during the meeting, and as noted above, additional information regarding the alternatives to be carried forward for detailed study (CP2) for the proposed relocation of BCCR has been prepared and is attached to this memo. In addition, the proposed purpose and need statement and study area (CP1) have been revised, and the revised CP1 concurrence form is included in the attached supplemental information. The proposed CP2 concurrence form (alternatives to be carried forward for detailed study) is also included in that information.

NCDOT and USACE are still reviewing supplemental information with regards to options to be carried forward for detailed study. Once this review has been completed, NCDOT will provide supplemental information and revised CP1/CP2 forms for Merger Team review. Please direct any comments or questions to Wilson Stroud, (919-707-6045, wstroud@ncdot.gov) or Ken Gilland (919-424-0486, kgilland@hntb.com).

kg/WS

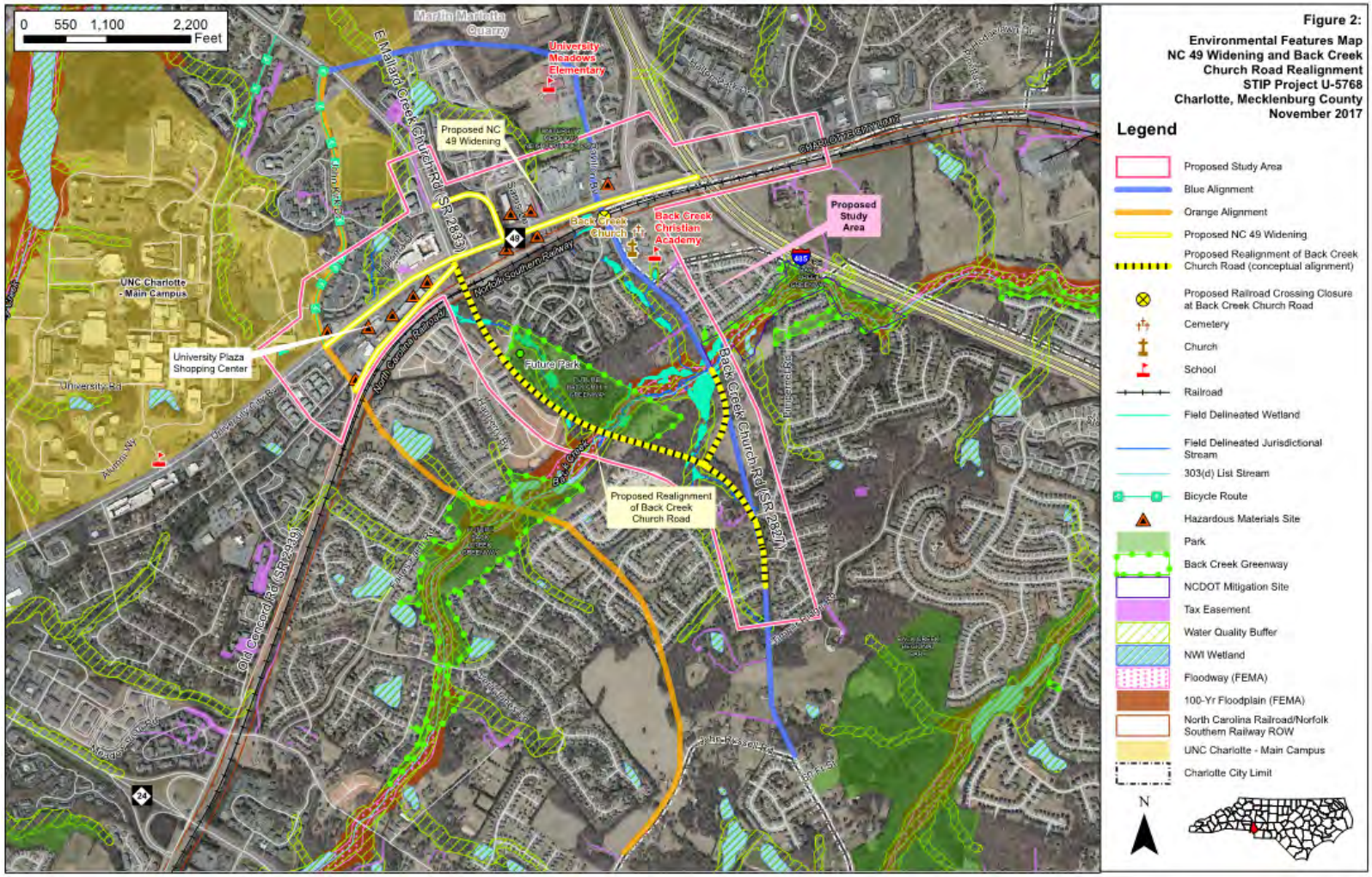
Attachments: CP2 Alternatives (Slide #31 from 11/16/17 CP1/CP2 Merger Meeting)

Figure 1 Revised Study Areas and Possible CP2 Alternatives

Figure 2 Nearby BCCR/ECR Projects (NC 49 to Rocky River Road)

Supplemental CP1 and CP2 information (includes revised concurrence forms) (to be sent by USACE).

1989 ECR Report



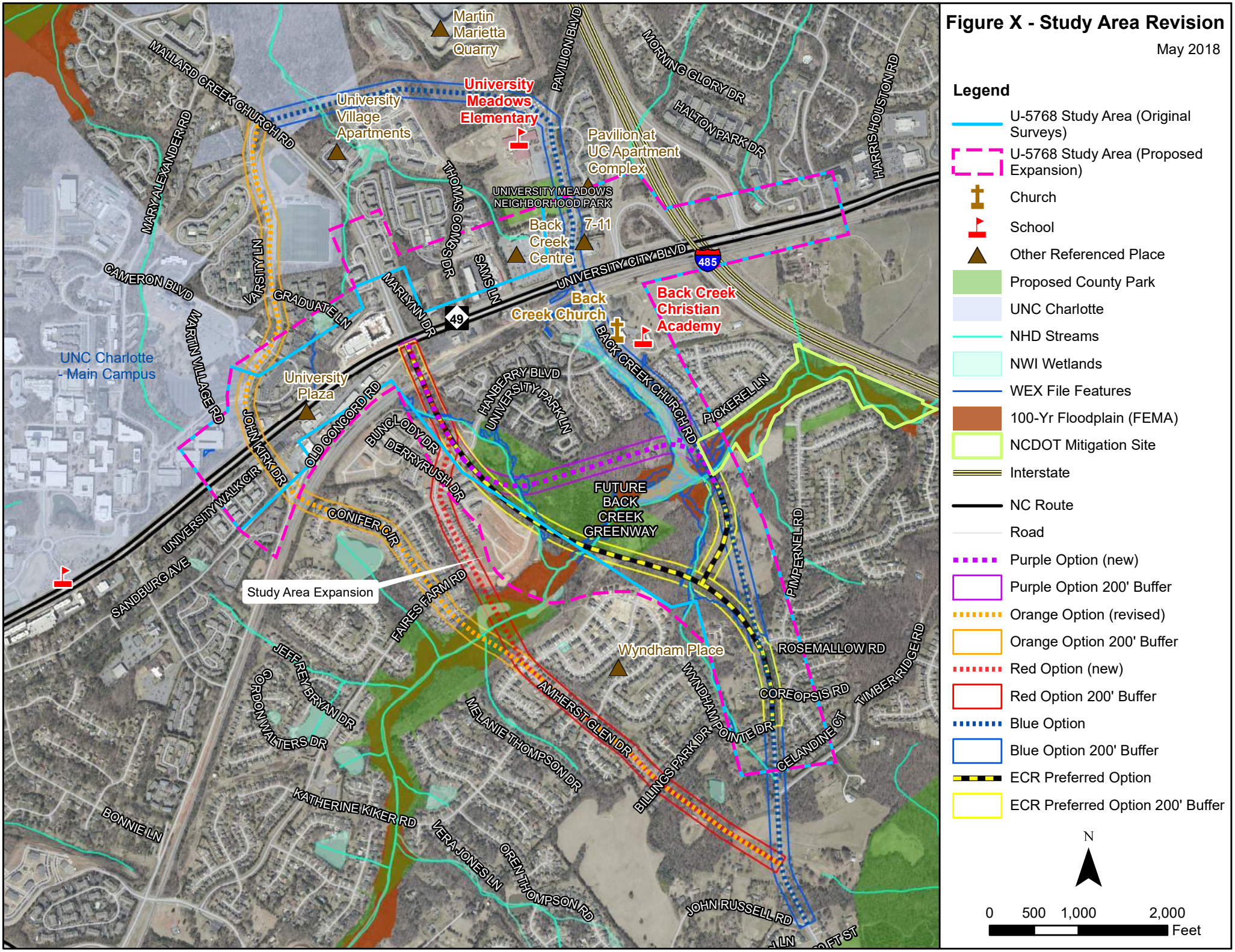


Figure X - Study Area Revision
May 2018
Legend
U-5768 Study Area (Original Surveys)
U-5768 Study Area (Proposed Expansion)
Church
School
Other Referenced Place
Proposed County Park
UNC Charlotte
NHD Streams
NWI Wetlands
WEX File Features
100-Yr Floodplain (FEMA)
NCDOT Mitigation Site
Interstate
NC Route
Road
Purple Option (new)
Purple Option 200' Buffer
Orange Option (revised)
Orange Option 200' Buffer
Red Option (new)
Red Option 200' Buffer
Blue Option
Blue Option 200' Buffer
ECR Preferred Option
ECR Preferred Option 200' Buffer
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0 500 1,000 2,000
Feet
Martin Marietta Quarry
University Meadows Elementary
University Village Apartments
Pavilion at UC Apartment Complex
UNIVERSITY MEADOWS NEIGHBORHOOD PARK
Back Creek Centre
7-11
Back Creek Church
Back Creek Christian Academy
UNC Charlotte - Main Campus
University Plaza
FUTURE BACK CREEK GREENWAY
Wyndham Place
Study Area Expansion
MALLARD CREEK CHURCH RD
MARY ALEXANDER RD
VARSITY LN
GRADUATE LN
CAMERON BLVD
MARTIN VILLAGE RD
JOHN KIRK DR
UNIVERSITY WALK CIR
SANDBURG AVE
OLD CONCORD RD
CONIFER CIR
THOMAS COMBS DR
SAMS LN
MARILYNN DR
UNIVERSITY CITY BLVD
485
49
PAVILION BLVD
MORNING GLORY DR
HALTON PARK DR
HARRIS HOUSTON RD
BACK CREEK CHURCH RD
PICKEREL LN
HANBERRY BLVD
UNIVERSITY PARK LN
BUNCLODY DR
DERRYRUSH DR
FAIRES FARM RD
PIMPERNEL RD
ROSEMALLOW RD
TIMBER RIDGE RD
COREOPSIS RD
CELANDINE CT
WYNDHAM POINTE DR
BILLINGS PARK DR
AMHERST GLEN DR
MELANIE THOMPSON DR
JEFFREY BRYAN DR
GORDON WALTERS DR
KATHERINE KIKER RD
BONNIE LN
VERA JONES LN
OREN THOMPSON RD
JOHN RUSSELL RD

Figure 2

Back Creek Church Road (future ECR)

Back Creek Church Road to dead-end at Railroad when Eastern Circumferential Road is connected to Back Creek Church Road

Northern Section | Eastern Circumferential Road
Funded Project
STIP Project U-5768 proposes a 4-lane divided facility.

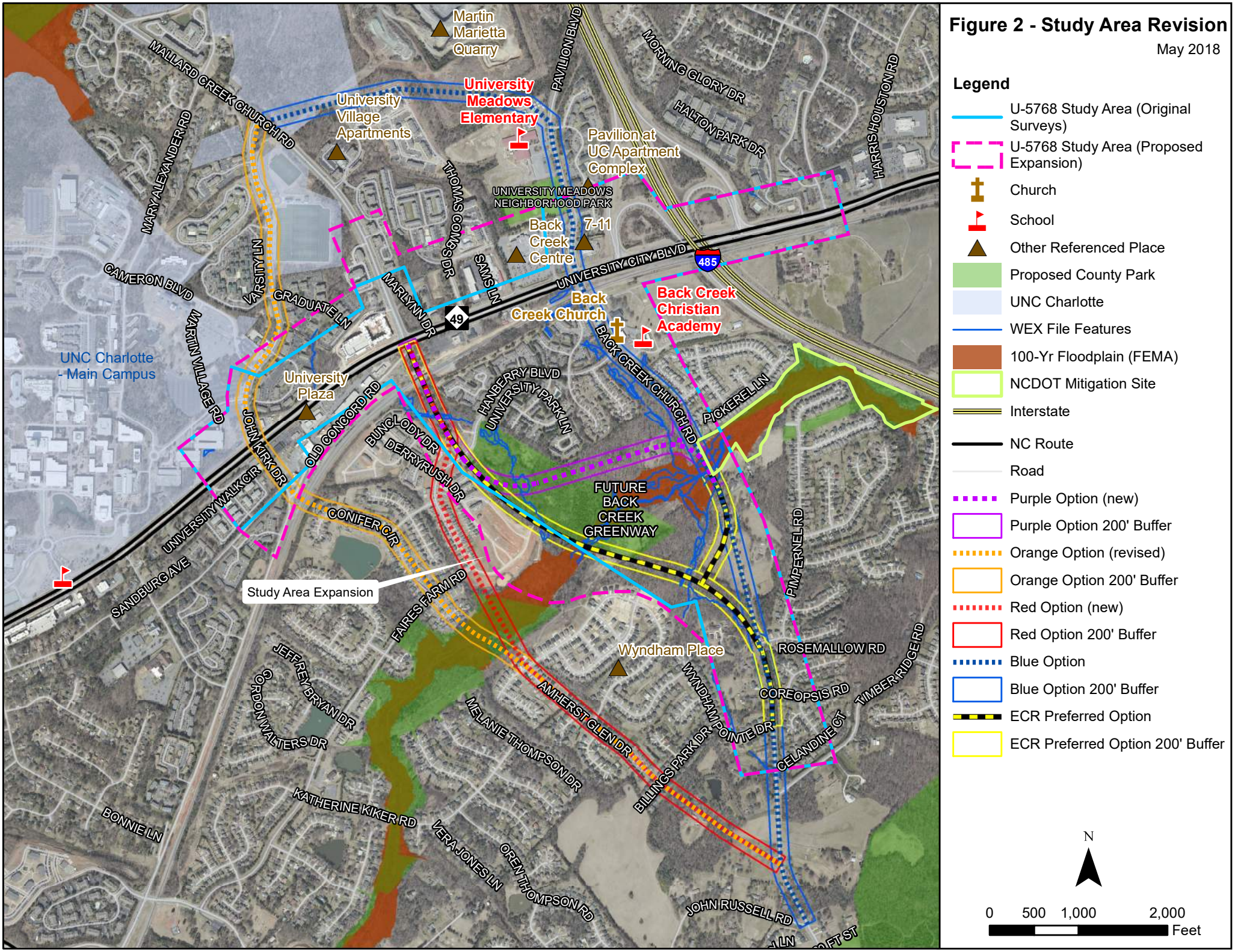
Middle Section | Eastern Circumferential Road / Back Creek Church Road
Unfunded Project
Included in CRTPO MTP as a horizon year 2035 project; proposes a 4-lane divided facility.

Southern Section | Eastern Circumferential Road
Unfunded Project
Included in CRTPO MTP as a horizon year 2035 project; proposes a 4-lane divided facility.

Southern Section | Back Creek Church Road
2017 | $4.7 million total (Funded Project) Under construction by CDOT; 3-lane facility

Back Creek Church Road and Rocky River Road Intersection Improvement Project W-5601BK
Funded Project
Scheduled for construction in 2018/2019 by NCDOT

Adapted from materials by: CHARLOTTE. WSP


Martin Marietta Quarry
University Meadows Elementary
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SAMS LN
UNIVERSITY CITY BLVD
485
CAMERON BLVD
VARSITY LN
GRADUATE LN
MARILYNN DR
49
MARTIN VILLAGE RD
JOHN KIRK DR
OLD CONCORD RD
BUNCLODY DR
DERRYRUSH DR
HANBERRY BLVD
UNIVERSITY PARK LN
BACK CREEK CHURCH RD
PICKEREL LN
UNIVERSITY WALK CIR
CONIFER CIR
SANDBURG AVE
FAIRES FARM RD
PIMPERNEL RD
ROSEMALLOW RD
TIMBER RIDGE RD
COREOPSIS RD
WYNDHAM POINTE DR
CELANDINE CT
AMHERST GLEN DR
BILLINGS PARK DR
JEFFREY BRYAN DR
GORDON WALTERS DR
MELANIE THOMPSON DR
KATHERINE KIKER RD
BONNIE LN
VERA JONES LN
OREN THOMPSON RD
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Figure 2 - Study Area Revision
May 2018
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U-5768 Study Area (Original Surveys)
U-5768 Study Area (Proposed Expansion)
Church
School
Other Referenced Place
Proposed County Park
UNC Charlotte
WEX File Features
100-Yr Floodplain (FEMA)
NCDOT Mitigation Site
Interstate
NC Route
Road
Purple Option (new)
Purple Option 200' Buffer
Orange Option (revised)
Orange Option 200' Buffer
Red Option (new)
Red Option 200' Buffer
Blue Option
Blue Option 200' Buffer
ECR Preferred Option
ECR Preferred Option 200' Buffer
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Feet

NEPA/404 Merger Team Meeting Agreement

Concurrence Point Number 1: *Project Purpose and Need & Study Area Defined*

Project Description: N.C. 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (S.R. 2827) on new location to the N.C. 49 and Mallard Creek Church Road (S.R. 2833) intersection; close existing at grade rail crossing at N.C. 49 and Back Creek Church Road, Charlotte, Mecklenburg County. **STIP Project: No. U-5768.**

Purpose and Need of Proposed Project

The needs to be addressed by this project include:

- N.C. 49 is currently operating at or close to congested levels.
- From 2000 through March 2016, there were six highway vehicle/train crashes at the NCRR/NS at-grade rail crossing on Back Creek Church Road just south of NC 49. Current typical train traffic as reported by Norfolk Southern is 38 trains per day, and train volumes are expected to double in the future, as this crossing is located within the proposed NCDOT Southeast High Speed Rail corridor.
- With the proposed closing of the S.R. 2827 (Back Creek Church Road) railroad crossing at NCRR/NS, the existing network connectivity between the Rocky River area to the south and N.C. 49 would be lost.
- Traffic volumes and lack of accommodations along N.C. 49 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes. CDOT, UNCC, and University City Partners have cited the need to accommodate pedestrians and bicycles in any proposed improvement.

The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on N.C. 49. Another purpose is to improve safety and enhance train and vehicle operations. The screening criteria for this are:

- Achieve an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040).
- Maintain connectivity from within the existing road network.
- Safely accommodate multi-modal uses of the corridor.

Project Study Area

The project study area boundaries are shown in Figure 1, dated May 2018. The study area varies along N.C. 49 to accommodate related traffic flow and connectivity improvements and includes the realignment Back Creek Church Road (SR 2827), as well as existing Back Creek Church Road.

The Project Team has concurred on the project purpose and need as stated above and the project study area as shown in Figure 1.

	Signature	Date
U.S. Army Corps of Engineers	Monte Matthews	19 July 2018
U.S. Environmental Protection Agency	DocuSigned by: Annette Sandberg 4A37089ED457408...	7/19/2018
U.S. Fish and Wildlife Service	Wendi L Brice	19 July '18
North Carolina Wildlife Resources Commission	Marla Chamblee	
North Carolina Division of Water Resources		
North Carolina State Historic Preservation Office	DocuSigned by: Renee Gledhill-Earley	18
Charlotte Regional TPO	DocuSigned by: Caroline Rorie 52FB645743AB496...	7/30/2018
North Carolina Department of Transportation		7-19-18

NEPA/404 Merger Team Meeting Agreement

Concurrence Point Number 2: *Preliminary Alternatives to be Studied in Detail*

Project Description: NC 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (SR 2827) on new location to the NC 49 and Mallard Creek Church Road (SR 2833) intersection; close existing at grade rail crossing at NC 49 and Back Creek Church Road, Charlotte, Mecklenburg County. **STIP Project: No. U-5768**.

Alternatives for Detailed Study

- **No-Build Alternative**
- **Yellow Option**: Best-fit widening along NC 49, relocation of Back Creek Church Road to NC 49 at Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208, and traffic flow and connectivity improvements to Old Concord Road (SR 2939) and Thomas Combs Drive
- **Purple Option**: Relocation of Back Creek Church Road north of the existing Back Creek crossing to NC 49 at Mallard Creek Church Road using the railroad bridge constructed as part of STIP Project P-5208.

The following BCCR alignment options were discussed and removed from detailed consideration (note that all options include best-fit widening along NC 49):

- **Blue Option**: Improve existing Back Creek Church Road (best-fit widening) to span NCRR and NC 49, construction of a loop/ramp to connect Back Creek Church Road (SR 2827) and Pavilion Boulevard to NC 49, best fit widening along Pavilion Boulevard, and a new location connector to Mallard Creek Church Road from Pavilion Boulevard.
- **Orange Option**: Relocation of Back Creek Church Road at a more westerly location to connect with NC 49 at John Kirk Drive (SR 2833), construction of a grade-separated crossing at NCRR south of NC 49, and improvements to John Kirk Drive north of NC 49.
- **Red Option**: Relocation of Back Creek Church Road at a more westerly location, using the railroad bridge constructed as part of STIP Project P-5208 and intersecting NC 49 at Mallard Creek Church Road.

The Project Team has concurred with the detailed study alternatives listed above.

	Signature	Date
U.S. Army Corps of Engineers	Mark McHenry	19 July 2018
U.S. Environmental Protection Agency	DocuSigned by: Annetta Sommerville 4A37089ED457408...	018
U.S. Fish and Wildlife Service	Wallace Rice	19 July '18
North Carolina Wildlife Resources Commission	Marla Chambers	
North Carolina Division of Water Resources		
North Carolina State Historic Preservation Office	DocuSigned by: Renee Gledhill-Earley	018
Charlotte Regional TPO	DocuSigned by: Caroline Rorie 52FB645743AB496...	7/30/2018
North Carolina Department of Transportation	J. W. Thu	7-19-18

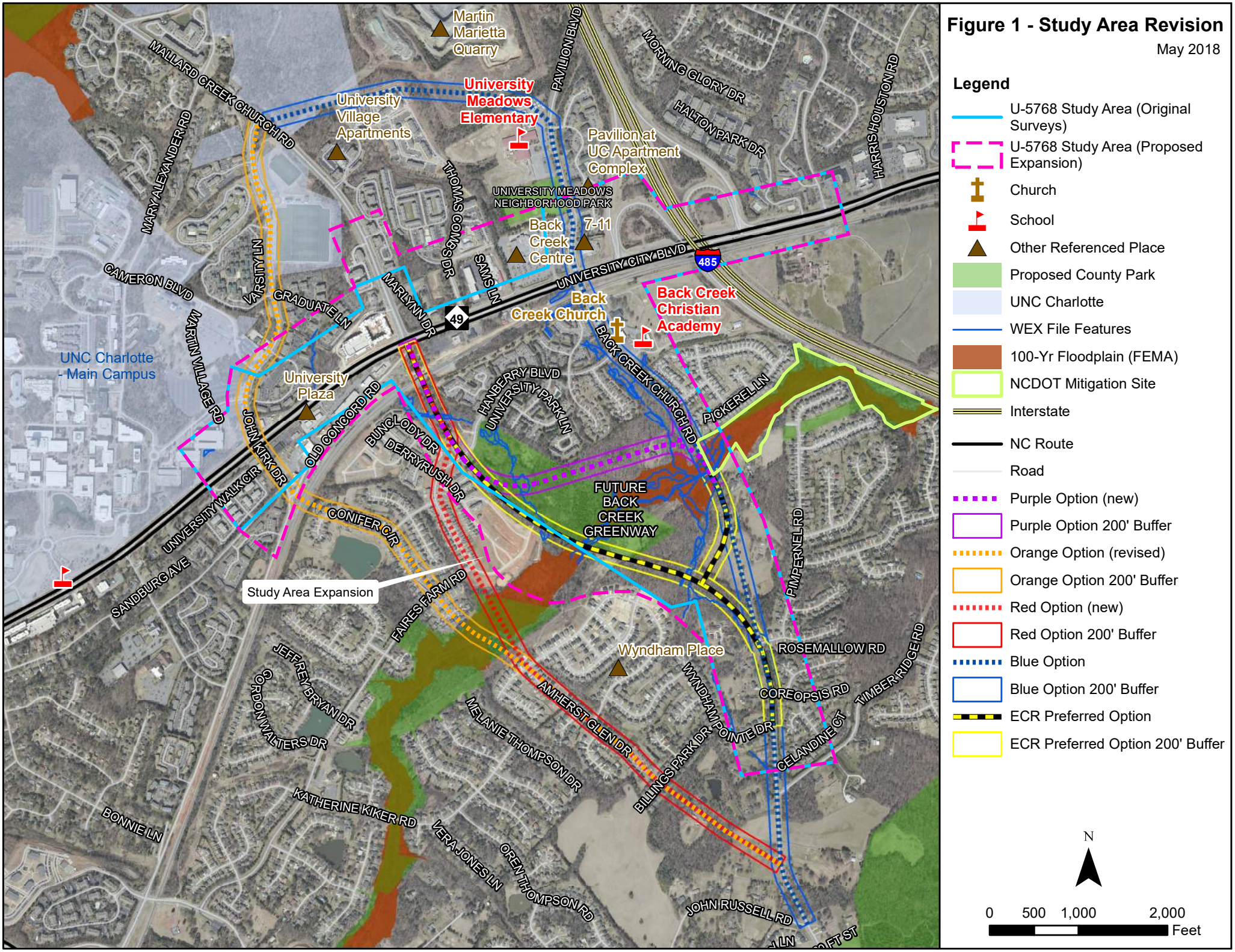

Figure 1 - Study Area Revision

May 2018

Legend

- U-5768 Study Area (Original Surveys)
- U-5768 Study Area (Proposed Expansion)
- Church
- School
- Other Referenced Place
- Proposed County Park
- UNC Charlotte
- WEX File Features
- 100-Yr Floodplain (FEMA)
- NCDOT Mitigation Site
- Interstate
- NC Route
- Road
- Purple Option (new)
- Purple Option 200' Buffer
- Orange Option (revised)
- Orange Option 200' Buffer
- Red Option (new)
- Red Option 200' Buffer
- Blue Option
- Blue Option 200' Buffer
- ECR Preferred Option
- ECR Preferred Option 200' Buffer

N

0 500 1,000 2,000 Feet

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

July 1, 2019

Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widening of Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County
June 13, 2019 1:00 P.M.

Meeting Purpose: To reach concurrence on the major hydraulic structures and alignment associated with Alternative 1 (Yellow Alternative) and Alternative 2 (Purple Alternative) for the detailed study alternatives carried forward for the realignment of SR2827 (Back Creek Church Road) (BCCR).

Meeting Attendees

Eric Alsmeyer	USACE	Eric.C.Alsmeyer@usace.army.mil
Monte Matthews	USACE	Monte.K.Matthews@usace.army.mil
Amanetta Somerville*	USEPA	Somerville.amanetta@epa.gov
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Marla Chambers	NCWRC	marla.chambers@ncwildlife.org
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Wilson Stroud opened the CP2A with a greeting and introductions. A presentation was given with the following topics discussed.

- The Meeting Purpose (to reach concurrence on structures for major crossings).
- Project description and background was discussed.
- It was noted that all impacts were reported based on slope stakes plus 40 feet based on the current design.
- NC 49 widening is common to both Alternatives. While it was noted that both Alternatives will have an impact on University Meadows Elementary, as school bus routes will have changes. NCDOT confirmed that the school will be relocated in September 2019 to a more eastern locale, closer to Harrisburg.
- There was discussion regarding the need for more alignment information for a final alignment sketch. John Jamison stated that this would be available as part of avoidance and minimization (CP4A).

Four site maps were provided with corresponding Alternatives information as follows:

Site 1:

- The proposed crossing is located in a valley. The proposed crossing structure (bridge) would accommodate the proposed Back Creek greenway without additional modification.
- The bridge would not require relocation of the transmission towers. Additional evaluation will take place to determine if there are any impacts to transmission lines.
- The design allows for a connection with the housing developments located along Alternative 1.

Site 2:

- NCDOT presented both culvert and bridge information for this crossing.
- The alignments expressed in the Site 2 maps are based on existing ROW with the Alternative 1 connector having the potential to move slightly East to decrease the radii of the curve. While movement of the alignment might reduce parallel impacts to one UT to Back Creek, it would not substantively affect the proposed length of a culvert needed to accommodate stream SL1.
- There was detailed discussion regarding the site. Concerns included: the request for additional information (outlined below) as well as concerns about animal crossings in the area.

Site 3:

- The proposed crossing structure would be a bridge, replacing the existing 45-foot bridge on site. The bridge would be longer than the existing structure and could be extended to accommodate the proposed greenway.
- There was discussion regarding wetlands on site and the culvert impacts. It was also discussed that the general practice is for NCDOT to replace an existing bridge with a new bridge.
- Either proposed bridge would be parallel with the existing stream mitigation site and would be designed to avoid any impacts to that feature.

Site 4:

- This existing culvert is at the Southern terminus, outside the current proposed limits of disturbance
- It was also noted that the existing culvert is not to current NCDOT standards and specifications.

Meeting Questions:

- **Ms. Hood:** Asked if a metric of Slopestakes +40 were used. It was noted this was the case

- **Mr. Alsmeyer**: Asked if a proposed culvert or bridge would affect parallel stream impacts for Site 2. NCDOT stated that if moved, the road could be tied in with a tighter radius, which would reduce the overall stream impacts for Alternative 1. The change would not impact the length of the proposed culvert.

- **Mr. Alsmeyer**: Asked if bridging on the subsequent part would have impacts. NCDOT stated that the bridge would have impacts to surrounding UTs.

- **Ms. Hood**: Asked if there were any part of the greenway that needs access and if there were any parts of the abutting developments that did not have access to the greenway. NCDOT stated that the proposed multi-use path allows for access at the crossing of Back Creek and the proposed county park, further stating that the greenway is below the level of the bridge at Site 1.

- **Marla Chambers** (NCWRC)**:** Asked why the stream crossing just south of the railroad bridge was not included in this CP 2A discussion. NCDOT stated that the watershed for the tributary was small and the stream did not require a major structure to be conveyed.

- **Ms. Hood:** Asked if there were greenway plans only on Back Creek for Alternative 1, specifically asking for Site 2. NCDOT noted that the only proposed greenway along Alternatives 1 or 2 was parallel to Back creek. It was noted that comments generated at the 4/23 public meeting for the project found that several

citizens expressed a need for public parks in Mecklenburg County. It was also noted that 17 public respondents at the meeting were in support of Alternative 1.

- **Ms. Hood:** Asked what costs are included in the proposed culvert cost outlined. NCDOT stated that these costs are derived by linear feet by the length of the culvert, and therefore do not include associated earthwork for the project. There was additional dialogue regarding an appropriate cost metric for the bridge and culverts proposals. NCDOT stated that the costs per linear feet were provided with regard to NCDOT standard bid metrics and that information was uniform for both bridges and culverts.

- **Ms. Chambers:** Asked if there were any FEMA requirements on site that may require a bridge to be utilized for Site 2. NCDOT stated that while Back Creek has a FEMA floodplain, the UT crossing at Site 2 does not.

- **Ms. Hood**: Asked why the bridge was much longer than the culvert option for Site 2. NCDOT stated that area topography presented some limitations as to the acceptable grades, which increased the length of the required bridge in this location. NCDOT agreed to present supplemental information to discuss this difference.

- **Mr. Alsmeyer:** Asked if moving the proposed connect to a more Eastern direction would also change the proposed turn lane. NCDOT stated that this would have an impact. It was noted that various factors would have to be contemplated, including sight distance, storage, the potential for a deceleration lane, etc.

- **Ms. Sutton:** Asked if the proposed bridge would extend beyond the proposed intersection with the Back Creek Church Road connector. NCDOT noted a bridge at Site 2 could be shiftily about 100 feet to the East.

- **Mr. Alsmeyer:** Asked if the curve increase for the stream impacts would also affect where the road could be located. NCDOT noted that changes could be more complex for the "Back Creek Church Road Connector" and discussed the proposed 90-degree angle for the proposed intersection.

- **Ms. Chambers:** Asked if the alignment for Site 3 (Alternative 2) could be shifted to minimize impacts. NCDOT stated that there is a house to the South of the site and the shift Ms. Chamber proposed would then require more residential takings for the project, further reiterating the proposed access points for the project.

- **Ms. Chambers:** Asked if there was an opportunity to move the road out more to mitigate the stream impacts for Site 3. NCDOT stated that moving the roadway would potentially impact the mitigation site or increase probable noise impacts. It was noted that the current design curves were set at the maximum allowable radii and that a superelevation over 2 percent would not be ADA compliant.

- **Ms. Hood**: Asked if NCDOT would be extending the existing culvert for Site 4. NCDOT noted that no construction impacts are anticipated in the area of the culvert; however it is the case that the culver is 'substandard' by current NCODT metrics with a depth of 3 feet (typical new construction culverts are generally at least 5 feet deep), stating that the culvert is 9 feet across. NCDOT would determine if a 'substandard culvert' would be able to be approved if there is a shift in the design. Any changes to the crossing structure for Site 4 would require Merger Team input.

- **Mr. Alsmeyer:** Asked for information regarding the culvert age and condition for Site 4. NCDOT stated that the culvert age is unknown but that there is additional information regarding the condition and site factors for the culvert in the Hydraulic Report.

Post-Meeting Notes:

Amanetta Somerville (USEPA), **Ms. Hood** and **Mr. Alsmeyer**: Asked if additional information regarding Site 2: further information regarding culvert costs and overall financial impacts of all outlined solutions, clarification regarding why a 125-foot bridge is proposed for this site and for more information regarding the potential for a more Eastern alignment could be made available prior to making a decision. Ms. Alsmeyer also asked for information regarding the parallel stream impacts for Alternative 1 or 2 if an alignment shift were to occur. Mr. Gilland stated that this could be provided. The meeting attendees determined that this could be provided via email in advance of the CP3 meeting tentatively proposed for August.

Please direct any comments or questions to Wilson Stroud (919-707-6045, wstroud@ncdot.gov), or Ken Gilland (919-424-0486, kgilland@hntb.com)

kg/WS

Attachments:
U-5768 CP21 Merger Meeting Supplemental Information Memorandum
Signature pages

June 20, 2019

MEMO TO: Merger Team

FROM: Laura E. Sutton, P
Team Lead – Divisions 7, 9 & 10
Project Management Unit

SUBJECT: STIP Project U-5768 - Supplemental Information for CP2A for Merger Team Consideration (proposed NC 49 and Back Creek Church Road improvements in Charlotte, Mecklenburg County)

During the June 13, 2019 Section 404/NEPA Merger Team CP2A meeting for STIP Project U-5768, questions were raised about assumptions made in the meeting packet and presentation with regards to the bridge length, unit costs, and mitigation costs for one of the proposed stream crossing options for major structures. Figures from the CP2A Meeting Packet showing the project location and the two proposed options for Back Creek Church Road (BCCR) are enclosed for reference.

Of the major structures evaluated, there were questions about the crossing associated with Site 2. Site 2 marks the crossing of an unnamed tributary (UT) to Back Creek. The information provided during the meeting is summarized in Table 1.

Table 1 - Site 2 Background Information from CP2A Meeting

Stream Name/ID	UT to Back Creek (SL)	
Intermittent/Perennial Status	Perennial	
Channel Dimensions	8.5' wide by 2' deep	
Stream Class	C	
Drainage Area	175 acres	
Existing Structure	None	
	Culvert Option	***Bridge Option***
Recommended Structure	1 @ 7'x6'x150'	125' long by 92' wide (3 spans @ 35', 50', 40')
Structure Cost[1]	$232,000	$3,439,000
Potential Stream Impacts[2]	150'	none

Notes:
1. Stream impacts are calculated based on slope stakes plus 40 feet. Stream impacts at proposed new crossing are measure the full length between slope stakes plus 40 feet. The reported stream impacts are approximate, based on preliminary designs.
2. Structure costs only. Cost estimates are based on bid averages provided by NCDOT.

During the meeting, agency representatives also questioned why the bridge length was so much longer than the proposed culvert width; questioned the cost of the bridge and culvert options; requested mitigation costs; and, asked about the potential to shift the alignment to minimize impacts to the stream and an associated UT along Alternative 1 (Yellow) -Y1- alignment.

Issue 1 – Length of Bridge vs. Culvert for Site 2

Proposed plan and profiles for both bridge and culvert options at Site 2 are shown in Figures 1 and 2, respectively. As the figures show, Site 2 is located in a relatively hilly area. The stream itself is in a valley with a large hill to the west. To construct the roadway with an adequate grade to meet current design standards and to balance earthwork quantities, excavation of the hill is required. The suitable material from the excavation can be placed as fill on top of the culvert or used to construct the bridge fill slopes.

As Figure 1 depicts, the preliminary minimum bridge length was determined by assuming a 10-foot minimum setback from the top of bank on each side of a stream to an interior pier. Then an assumed 1.5:1 fill slope was projected up to the proposed grade line and adjusted for the bridge superstructure depth based on the span lengths. As mentioned in the CP2A meeting, the geography and vertical profile (approximately 20' fill height) contributes significantly to the bridge length.

As Figure 2 from the Hydraulic Planning Report shows, the culvert is buried approximately 20' and the preliminary culvert size is based on the drainage area and topography. A single barrel box culvert was determined to provide the required hydraulic conveyance at this crossing. The width of the culvert is estimated to be approximately 7 feet to match the downstream channel width and the preliminary analysis indicates that a 7-foot x 5-foot RCBC is adequate for conveyance. To minimize environmental impacts and aid in animal passage, a 7-foot x 6-foot RCBC buried 1 foot is the preliminary culvert size included in the estimate. Please note that as the project design progresses there may be opportunity to further adjust the alignment and grade to minimize the required culvert length. It is also noted that the upstream structure is a 42-inch circular pipe at Wyndham Point Drive and approximately 1,300 ft downstream is the confluence with Back Creek. The normal flow depth in the stream is approximately 0.5'.

As shown in Figure 3, the bridge length at Site 3 is also based on the 10-foot minimum setback to the slope protection (since interior pier is not required) and then an assumed 1.5:1 fill slope was projected up to the proposed grade line and adjusted for the bridge superstructure depth. The differences in bridge lengths between Site 2 and Site 3 are primarily due to the difference in fill heights since the vertical profile at Site 3 ties in very close to the existing grade and minimal fill is required.

Issue 2. Unit Costs and Quantities

As discussed in the CP2A meeting, the initial bridge and culvert estimates included structure costs only. At the request of the merger team, the detailed estimate for the culvert has been updated to include anticipated earthwork, pavement, curb and gutter, and multi-use path items. Multi-use path items are typically incidental to the square-foot bridge cost, but the bridge estimate has been revised to include earthwork and reinforced bridge approach fills. As mentioned in last week’s meeting, the bridge width significantly contributes to the bridge cost.

Table 2 - Site 2 Detailed Cost Estimate

Description	Quantity	Unit	Price	Amount Culvert Option	Amount Bridge Option
Structure Items					
RCBC 7' x 6'	150*	LF	$ 1,300.00	$ 195,000*	-
Bridge over Trib. to Back Creek 92' W x 125' L	11,500	SF	$ 250.00	-	$ 2,875,000
Bridge Approach Slabs 2 @ 92' W x 25' L	4,600	SF	$ 25.00	-	$ 115,000
15% Misc. & Mob				$ 30,000*	$ 449,000
Structure Items Total				**$ 225,000***	**$ 3,439,000**
** Please note that the original estimate used a culvert length of 155'.*					
Roadway Items					
Earthwork (borrow)	19,100	CY	$ 8.00	$ 152,800	-
	6,000	CY	$ 8.00	-	$ 48,000
Reinforced Bridge Approach Fills	1	LS	$ 45,000.00	-	$ 45,000
Fine Grading	2,038	SY	$ 3.00	$ 6,114	-
	589	SY	$ 3.00	-	$ 1,767
Full Depth Pavement	1,119	SY	$ 60.00	$ 67,140	-
	49	SY	$ 60.00	-	$ 2,940
Subgrade Stabilization	1,119	SY	$ 10.00	$11,190	-
	49	SY	$ 10.00	-	$ 490
2'-6" Concrete Curb and Gutter	346	LF	$ 25.00	$ 8,650	-
4" Concrete Sidewalk	462	SY	$ 57.00	$ 26,334	-
5" Monolithic Islands	116	SY	$ 91.00	$ 10,556	-
35% Misc. & Mob				$ 99,000	$ 34,400
Roadway Items Total				$ 381,800	$ 132,600
Total				**$ 606,800**	**$ 3,571,600**
Mitigation					
Stream (2:1 ratio)	300	LF	$ 507.32	$ 152,200	-
Wetland (premium rate)	0.01	AC	$ 91,984.41	$ 920	-
Mitigation Total				**$ 153,200**	-

Issue 3. Mitigation Costs

During the Merger Meeting, it was agreed that it was appropriate to assume a 2:1 mitigation ratio for stream impacts. Using the current impacts (slope stake limits buffered by 40 feet) and assuming $507.32 per linear foot for stream mitigation and $91,984.41 (as a premium rate area) per acre for wetland mitigation, mitigation values were calculated for the proposed Site 2 crossing. Using a bridge rather than a culvert would reduce mitigation costs for Alternative 1 by approximately $153,200.

Issue 4. Alignment Adjustments for Site 2

During the discussion of Site 2, it was noted that NCDOT would attempt to adjust the alignment of Alternative 1 in this area to minimize impacts to a UT that currently has a parallel impact. The constraints in this area include providing access to the housing development north of Site 2 while maintaining a perpendicular intersection with existing

Back Creek Church Road. The avoidance and minimization efforts are on-going and will be presented to the Merger Team at the CP4A meeting. Please note that the impacts associated with the culvert at Site 2 for stream SL are not anticipated to change significantly if the -Y1- and / or -Y3- alignments are moved based on the estimated slope stake plus 40 feet limits.

NEPA/404 Merger Team Meeting Agreement

Concurrence Point Number 2A: *Bridging Decisions and Alignment Review*

Project Description: N.C. 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (S.R. 2827) on new location to the N.C. 49 and Mallard Creek Church Road (S.R. 2833) intersection; close existing at grade rail crossing at N.C. 49 and Back Creek Church Road, Charlotte, Mecklenburg County. **STIP Project: No. U-5768.**

- For Site 1 (Alternative 1), construct a three-span bridge approximately 220 feet long.
- For Site 2 (Alternative 1), construct a new Reinforced Concrete Box Culvert extending approximately 150 feet.
- For Site 3 (Alternative 2), replace the existing bridge with a single-span bridge approximately 70 feet long (based on hydraulics report). NCDOT will coordinate with Mecklenburg County and CDOT and will revise the length to 90 feet to accommodate the proposed Back Creek Greenway, contingent on a municipal agreement.
- If the project requires extension or replacement of the culvert at Site 4 (Alternatives 1 and 2), the Merger Team will be informed and will have an opportunity to agree upon the appropriate structure.

The additional information provided on June 20, 2019 (appended to this form) and discussed via conference call on June 24, 2019 included questions about the need for 10-foot setbacks for the bridge, how cut and fill were balanced for Site 2, and that NCDOT would continue to explore avoidance and minimization measures. If NCDOT is able to move the proposed Site 2 crossing, it would not substantially change the length of the culvert but would reduce impacts to a stream with current parallel impacts. This same information was provided to DWR via email on June 25, 2019, who provided concurrence on June 27, 2019.

The Project Team has concurred on this date of June 27, 2019, on the above Bridging Decisions and Alignment Review for STIP Project U-5768.

U.S. Army Corps of Engineers _____ DocuSigned by: Eric Alsmeyer B5639CEB350C4C2...

U.S. Environmental Protection Agency _____ Amanda Somerville

U.S. Fish and Wildlife Service _____ DocuSigned by: Clair Ellwanger

North Carolina Wildlife Resources Commission _____ DocuSigned by: Mark Chambers B1D3DCA076AD4C9...

North Carolina Division of Water Resources _____ Donna Hoo

Charlotte Regional TPO _____ DocuSigned by: Robert Cook

North Carolina Department of Transportation _____ DocuSigned by: D W. Stroud F7BC0DE327DC438...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 26, 2019

Meeting Summary

STIP Project U-5768, NC 49 from John Kirk Drive to I-485; Widening of Existing Roadway and Relocation of Back Creek Church Road; Charlotte, Mecklenburg County
August 14, 2019 1:30 P.M.

Meeting Purpose: To reach concurrence on a revision to the project study area (CP1) and determination of the Least Environmentally Damaging Practicable Alternative (LEDPA) (CP3) for the Improvements proposed under U-5768.

Meeting Attendees

Nicholle Braspennickx*	USACE	Nicholle.M.Braspennickx@usace.army.mil
Monte Matthews	USACE	Monte.K.Matthews@usace.army.mil
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Jeff Hess*	HNTB	jhess@hntb.com
Paige Hunter*	HNTB	phunter@hntb.com

*Attended via phone

Wilson Stroud opened the CP3 with a greeting and introductions. A presentation was given with the following topics discussed.

- The Meeting Purpose (to reach concurrence on structures for the revision of the project study area and for the Least Environmentally Damaging Practicable Alternative and to discuss avoidance and minimization measures).
- Project description and background was discussed.
- It was noted that stream impacts were reported based on slope stakes plus 40 feet based on the current design.
- NC 49 widening is common to both Alternatives. It was noted that both Alternatives will have an impact on University Meadows Elementary, as school bus routes will have changes. NCDOT confirmed that the school will be relocated in September 2019 to a more eastern locale, closer to Harrisburg.

Expanded Study Area (CP 1) Discussion:

- **Ken Gilland** stated that the proposed project study area extension along NC 49 west of John Kirk Drive covers an increased area needed to accommodate proposed U-turns and vehicle storage for turn lanes, based on the Traffic Analysis Addendum for the project. It was noted that there were no culverts in the area of the extension and that NCDOT Historic Architecture reviewed the proposed extension and stated, "As currently defined, the project may be considered in compliance with both GS 121-12(a) and Section 106 for historic architecture." It was noted that the area would be fully reviewed for potential resource impacts, and that the Merger Team would be informed if any issues were discovered.
- **Amanetta Somerville** asked if the proposed bulb out area had any culverts. Ken stated that the area had been reviewed and no culverts were located in the area.
- **Nicholle Braspennickx** asked if the project was state funded. Wilson answered that it was.
- **Donna Hood** asked why the need to expand the study area was not known when the original study area was established. Laura Sutton answered that the Traffic Analysis update was completed this May (2019), and that changes to the network in Transmodeler indicated the need to expand the study area. Ken stated that UNC Charlotte asked for NCDOT to look at ways to minimize the expansion to keep the

proposed traffic crossing close to the existing High intensity Activated CrossWaLK (HAWK) crossing.

- **The Merger Team** agreed to sign a concurrence form noting the expanded study area with a new figure to show the complete study area and the proposed expansion.

LEDPA (CP3) Discussion:

- **Ken** noted that the impacts discussion and subsequent additional information was based on the discussion at the June 13, 2019 CP 2A meeting.
- Impacts for streams and wetlands were revised after the CP2A meeting based on the bridging of Back Creek for both project build alternatives.
- **NCDOT** noted that the construction of the Back Creek bridge for Alternative 1 (Yellow) would not require work in the Duke Energy power line utility easement, while constructing the bridge for Alternative 2 (Purple) would require construction cranes to work within the existing easement, as the current bridge is within the easement area. NCDOT's attempts to avoid work in power line easement areas.
- Impacts for Alternative 1 (Yellow) were further reduced by 60 feet after the CP2A meeting due to a redesign of the proposed intersection of existing Back Creek Church Road with the Proposed Back Creek Church Road relocation, which minimized impacts to an unnamed tributary (UT) to Back Creek.
- **NCDOT** noted that Alternative 1 would be compatible with the proposed Back Creek Park and the proposed Back Creek Greenway. There would be approximately 1.7 acres of parallel impact to the park under Alternative 1. Alternative 2 would cut through the proposed park. Alternative 2 would have 4.4 acres of direct impact to the park and would divide it into a northern parcel of 7.7 acres and a southern parcel of 21.2 acres.
- **Marla Chambers** asked which alternative has the most residential impacts. Ken stated that Alternative 1 (Yellow) has fewer residential parcels impacted and less overall parcel impact than Alternative 2 (Purple). Alternative 1 (Yellow) would require one residential relocation while Alternative 2 (Purple) had no residential relocations. Marla said she could concur with Alternative 1 as the LEDPA.
- **Nicholle** stated that to date only one comment had been received about the project during the USACE comment period. The comment was from a resident of the current Back Creek Church Road area.
- **Donna** asked for verification that impacts along NC 49 were the same for both alternatives, with the only difference being in terms of residential and commercial impacts related to the Back Creek Church Road relocation. Ken stated that this was the case.
- **Amanetta and Donna** stated that they had no objections to Alternative 1 being decided as the LEDPA.
- **Donna** asked why Alternative 1 (Yellow) costs more than Alternative 2 (Purple). Laura answered that it was mainly due to the new location component of Alternative 1 (Yellow) having greater topography, which requires greater cuts and fill, as stated in the supplemental information provided for Concurrence Point 2A.

- **Marla** asked if all attendees could have a summary of comments received by USACE during the public notice period. Nicholle stated she would send out the comment summary with the meeting summary and signature pages.

Avoidance and Minimization (CP4A) Discussion:

- **Donna** stated that she would like to see a greater level of design before committing to avoidance and minimization measures.
- **Ken** asked if CP 4A could be done via email. The Merger Team expressed a preference for an in-person meeting. However, the team was amenable to reviewing a spreadsheet of avoidance and minimization measures via email and making a final determination as to a in-person meeting after reviewing the materials.
- **Donna** stated that a combination CP 4A/4B meeting could be considered.

Action Items:

- **USACE** will send out the CP 1 and CP 3 signature pages along with a summary of all comments received during the USACE public notice
- **PMU** will send a DocuSign for Merger Team concurrence.

Please direct any comments or questions to Wilson Stroud (919-707-6045, wstroud@ncdot.gov), or Ken Gilland (919-424-0486, kgilland@hntb.com)

kg/WS

Attachments:
U-5768 CP1 and CP 3 Signature pages
Figure 1 (Study Area Revision)
Figure 2 (Map of LEDPA)

NEPA/404 Merger Team Meeting Agreement

Concurrence Point Number 1: *Project Purpose and Need & Study Area Defined*

Project Description: NC 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (SR 2827) on new location to the NC 49 and Mallard Creek Church Road (SR 2833) intersection; close existing at grade rail crossing at NC 49 and Back Creek Church Road, Charlotte, Mecklenburg County. **STIP Project: No. U-5768.**

Purpose and Need of Proposed Project

The needs to be addressed by this project include**:**

- NC 49 is currently operating at or close to congested levels.
- From 2000 through March 2016, there were six highway vehicle/train crashes at the North Carolina Railroad/ Norfolk Southern Railroad (NCRR/NS) at-grade rail crossing on Back Creek Church Road just south of NC 49. Current typical train traffic as reported by Norfolk Southern is 38 trains per day, and train volumes are expected to double in the future, as this crossing is located within the proposed NCDOT Southeast High Speed Rail corridor.
- With the proposed closing of the SR 2827 (Back Creek Church Road) railroad crossing at NCRR/NS, the existing network connectivity between the Rocky River area to the south and NC 49 would be lost.
- Traffic volumes and lack of accommodations along NC 49 limit bicycle and pedestrian activity along regionally important multi-modal transportation routes. CDOT, UNC Charlotte, and University City Partners have cited the need to accommodate pedestrians and bicycles in any proposed improvement.

The primary purposes of the proposed project are to reduce traffic congestion, improve traffic flow, and enhance traffic operations on NC 49. Another purpose is to improve safety and enhance train and vehicle operations.

The screening criteria for this are:

- Achieve an overall Level of Service (LOS) D for intersections along the project corridor in the design year (2040).
- Maintain connectivity from within the existing road network.
- Safely accommodate multi-modal uses of the corridor.

Revised Project Study Area

The project study area boundaries are shown in Figure 1, dated August 2019 (attached). The study area varies along NC 49 to accommodate related traffic flow and connectivity improvements and includes the realignment Back Creek Church Road (SR 2827), as well as existing Back Creek Church Road. The study area has been revised to extend slightly to the west (approximately 650 feet) on NC 49 to accommodate increased storage needs for eastbound traffic turning left onto Mallard Creek Road and traffic making a U-turn to travel eastbound on NC 49 from Mallard Creek Road. These revisions are based on the Final U-5768 Traffic Analysis Addendum (NCDOT, June 2019).

The Project Team met on August 14, 2019 and concurs with the expanded project study area as shown in Figure 1 (attached, dated August 2019).

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

North Carolina Wildlife Resources Commission

North Carolina Division of Water Resources

North Carolina State Historic Preservation Office

Charlotte Regional TPO

North Carolina Department of Transportation

NEPA/404 Merger Team Meeting Agreement

Concurrence Point Number 3: *Least Environmentally Damaging Practicable Alternative*

Project Description: NC 49 from John Kirk Drive to I-485 (widen existing roadway); realign Back Creek Church Road (S.R. 2827) on new location to the NC 49 and Mallard Creek Church Road (SR 2833) intersection; close existing at grade rail crossing at NC 49 and Back Creek Church Road, Charlotte, Mecklenburg County. **STIP Project: No. U-5768**.

The Merger Team met on August 14, 2019 and concurs with the selection of the following alternative as Least Environmentally Damaging Practicable Alternative for STIP Project No. U-5768:

- **Build Alternative 1 (Yellow Option), as shown in Figure 2 (attached, dated August 2019):** Best-fit widening along NC 49, relocation of SR 2827 (Back Creek Church Road) to NC 49 at SR 2833 (Mallard Creek Church Road) using the railroad bridge constructed as part of STIP Project P-5208, and traffic flow and connectivity improvements to SR 2939 (Old Concord Road) and Thomas Combs Drive.

U.S. Army Corps of Engineers — DocuSigned by: Monte Matthews 8F7D10A4B41943A...

U.S. Environmental Protection Agency — Amanetta Somerville

U.S. Fish and Wildlife Service — DocuSigned by: Claire Ellwanger

North Carolina Wildlife Resources Commission — DocuSigned by: Mark Chambers B1D3DCA076AD4C9...

North Carolina Division of Water Resources — Donna Hoo

North Carolina State Historic Preservation Office — DocuSigned by: Renee Gledhill-Earley

Charlotte Regional TPO — DocuSigned by: Robert Cook

North Carolina Department of Transportation — DocuSigned by: D.W. Stroud F7BC0DE327DC438...

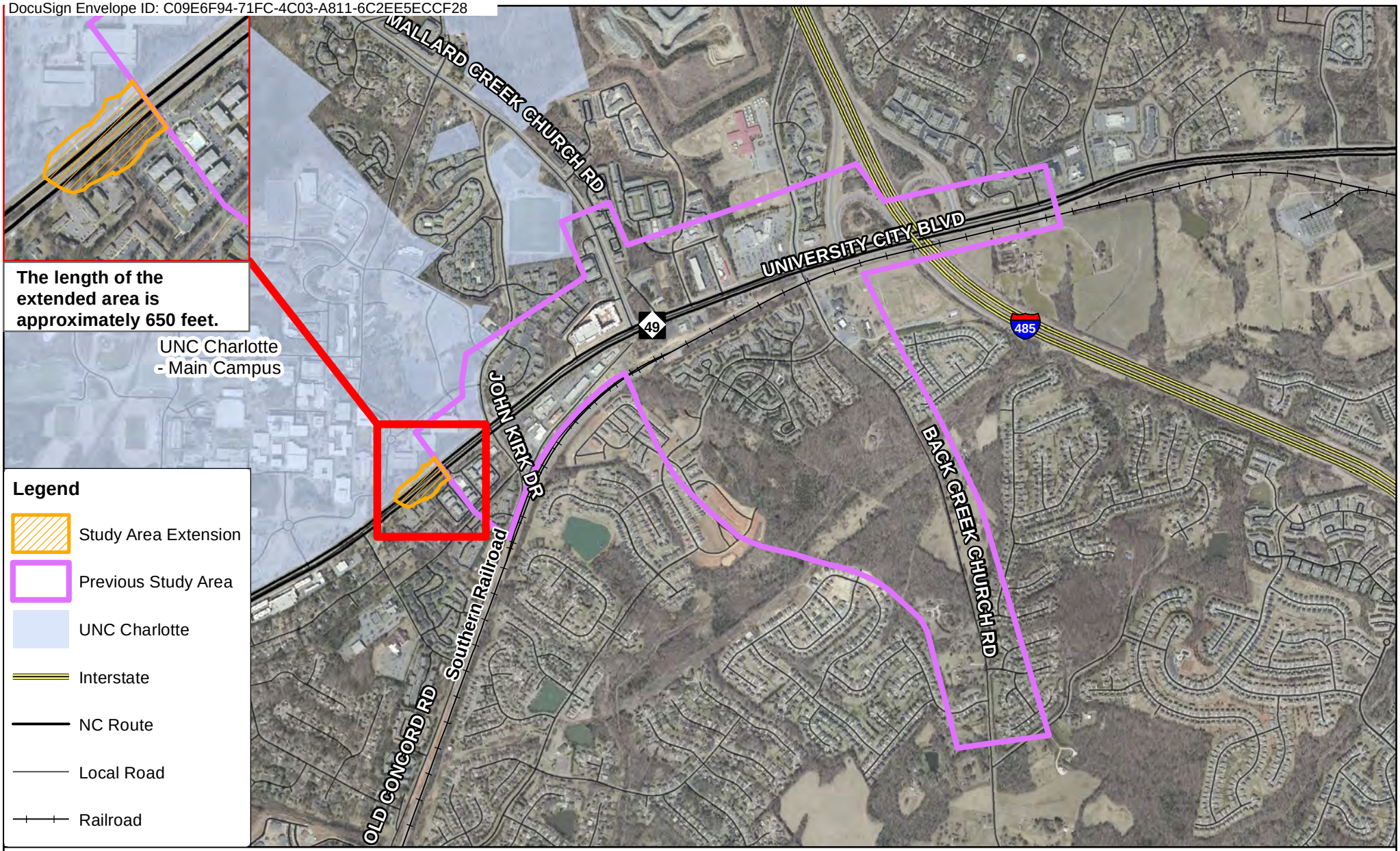

FIGURE 1
Revised Study Area
NCDOT STIP U-5768
N.C. 49 Widening and Back Creek Church Road Realignment
August 2019

Sources: NCDOT, NCOneMap, City of Charlotte, Mecklenburg Co.
Credit: HNTB 2019.

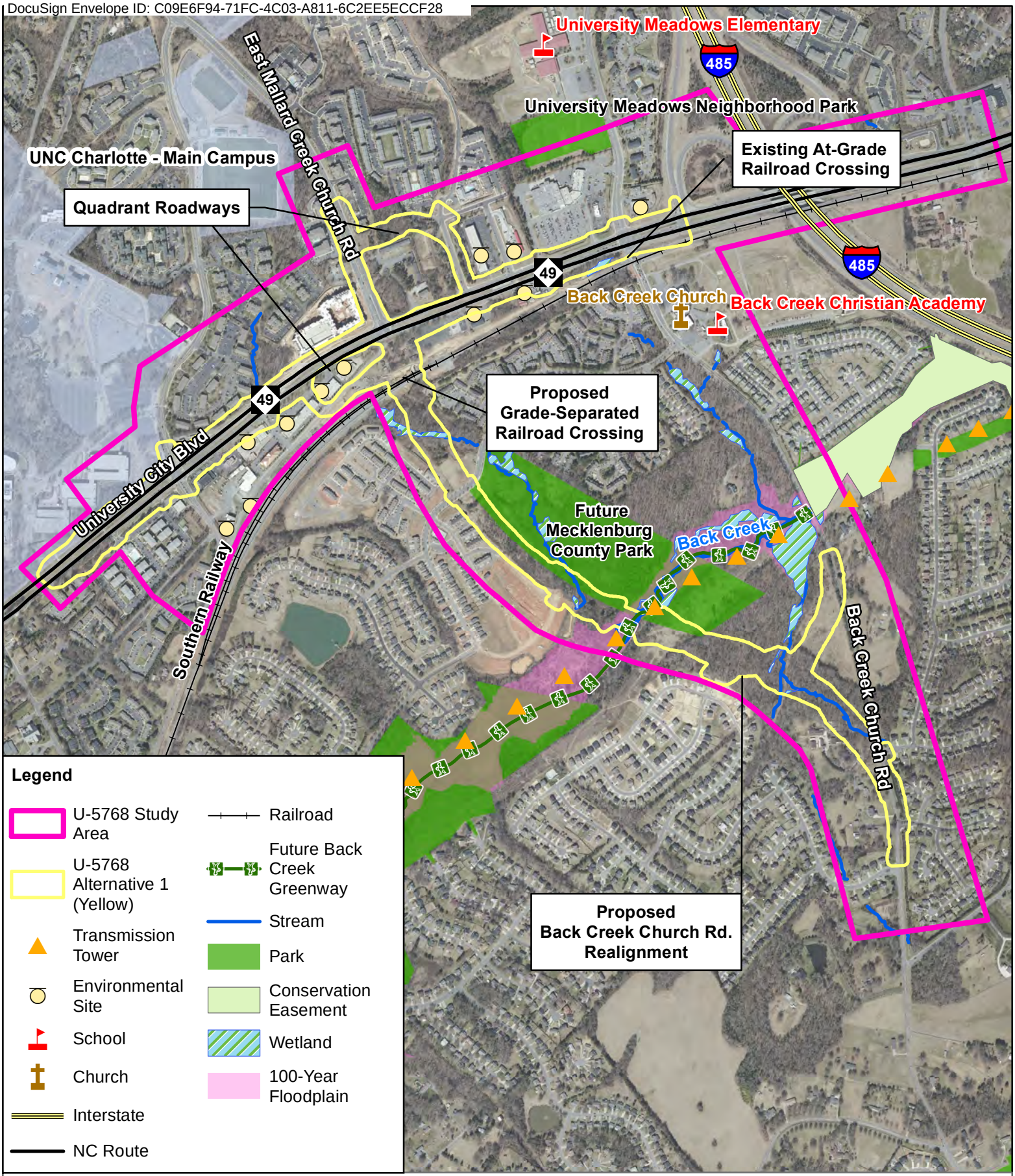

FIGURE 2 – Preferred Alternative
STIP U-5768
NC 49 Widening and Back Creek Church Road Realignment
Charlotte, Mecklenburg County
August 2019